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'George 3 is (still) for me'

OVER 130 George 3 alumni were rounded up at ICL's Beaumont training centre last Friday, April 27, by that still virile organisation, the George 3 Beer Committee.

The occasion was the tenth anniversary of the announcement of George 3 on April Fools Day 1969 and, as one wag commented, being only 26 days late after ten years was not bad going.

That reference to lateness struck a nightmarish chord among those who had been involved in the early releases of George 3 when changes and delays were happening so rapidly that the user notices to update newly published manuals were often larger than the manuals themselves.

Yet when George 3 began to reach maturity at the age of about Mark 5 and the teething problems receded into the warmth of childhood memories, the operating system began to achieve first respect and then love among its users.

That love has become embarrassing for ICL because, as reflected by the comments of the chairman of the ICL Computer Users Association at last month's user convention (see page 20), users are asking why the 2000 operating systems have not yet lived up to the standards set by George.

This favourable user response to George is the true vindication of the work which grew in the mid-60s from the nucleus design team of Jeff Strauss, Dan Destreicher, Brian Moore and Mick Bailey to encompass around 500 development staff and untold person hours of work. Many users would now proudly wear the vintage badge produced some years ago by ICL sales promotion, which stated GEORGE 3 FOR ME.

Mingling among the merry at Beaumont Strauss recalled how George was named. Seven design options were being considered, identified by the letters A to G. The seventh option was chosen and the G turned to George and was then linked to the manager of the division responsible for its development, George Felton. Finally came the expansion of the name to GEneral ORGanisational Environment so that an answer could be given to the question "What does George mean?"

The loyalty to George 3 by its former staff was indicated by the large turn-out at Beaumont. Beer Committee chairman Roy Walker said he had managed to draw up a list of over 300 staff who had been on George 3 development

NEWS IN BRIEF

Preview of Mitra 225

A POWERFUL successor to the highly successful Mitra 15 and Mitra 125 minicomputers has been announced by SEMS in France.

Visitors to Hanover Fair had a sneak preview of the machine on the stand of SEMS' Hungarian partner Videoton (CW, April 19). Called the Mitra 225, it is fully compatible with the 125, and has main memory capacity of up to 512K-words. A key feature of the architecture is multiple microprocessors handling tasks like transferring data between memory and peripherals, and handling branch instructions and test functions.

Services upgrade

THE bureau service operated by the Data Services Division of Control Data at East Barnet, Herts, has been significantly upgraded by the replacement of an IBM 360/65 with a 3031 and a change from the OS/MVT operating system to MVS. The latter provides improved facilities like a much simplified Job Control Language.

TPS 6 for US

THE transaction processing system TPS 6, introduced in the UK last year by Honeywell for its Level 6 minicomputers, is to be marketed by the company in the US. Developed by Honeywell's Hemel Hempstead systems centre, the software runs under the GCOS 6 Mod 400 executive.

Solid state disc

AN IBM 3033 user in the US, Neodata Services Inc of Boulder, Colorado, is the first in the world to replace IBM 2305 fixed head rotating memory with the 4305 solid state semiconductor disc from Storage Technology Corp. The 4305 employs 64K bit charge coupled devices and looks like having a RAM based competitor from Intel soon (CW, April 12).

Programmers' strike at GEC hits System X

THE pace of System X development, already being hindered by a pay and parity dispute in the Post Office (CW, April 26), could be slowed even further by a strike of programming staff at two GEC works in Coventry.

The Post Office dispute, now in its fourth week, involves members of the Society of Civil and Public Servants. Computer centres in Leeds and Harmondsworth are the focus of their action.

Leeds operates online billing applications while Harmondsworth is involved in System X, commercial time sharing and stores control. The Post Office confirmed this week that no work is being done at Harmondsworth.

Junior operators and clerical staff, members of the Civil and Public Servants Association, have been pulled out of some centres, halting the inflow of phone bill cheques.

"One of the areas experiencing most confusion is Heathrow," said an SCPS spokesman, "where the Laces system is shut down." Customs staff are issuing a 24-hour collection notice whereby if an importer has not been informed of the whereabouts of his freight within that time, he can come and look for it in the warehouses. There is quite a bit of chaos."

To combat the telephone billing problems, the Post Office is attempting to process commercial customer bills manually, but has said there is little it could do to get either Harmondsworth or the Laces system working normally.

"We are hoping to make an offer to the union in the next week or so," said a spokesman.

At GEC, about 300 development programmers, members of the Association of Scientific, Technical and Managerial Staff, are taking action in support of a claim for pay parity and a similar grading structure with Post Office engineers, on the grounds that they do the same System X work.

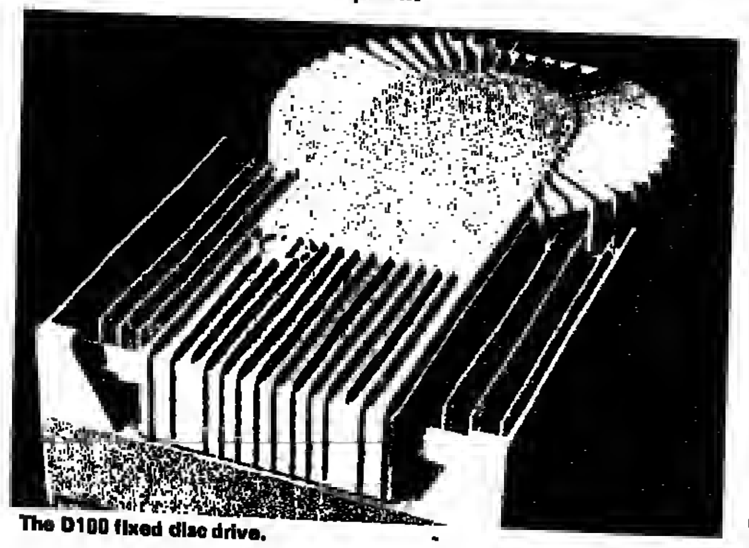
"The company has had to give us a Central Arbitration Council award of about 5% that puts us in line with Plessey and STC workers, but we are still between £1,000 and £3,000 out relative to the Post Office engineers," said an ASTMS spokesman.

● Despite their acceptance of the government's pay offer (CW, April 19), some Civil Servants, members of the SCPS, are continuing with strike action. This is because of a Civil Service Department ruling which threatens to reduce the permanent or temporary promotion prospects of all staff who took part in the main strike.

"The CSD seems to be holding fast on this," said Campbell Christie, deputy general secretary of the SCPS, "but we won't be going back to work until this is sorted out. All the main centres such as the VAT centre in Scotland will still be affected."

Bank data links

BARCLAYS Bank International is to install £145,000 worth of 4,800 bps microprocessor controlled modems from Racal-Milgo in its network linking 27 remote sites in the UK to dual IBM 370/158s at its data centre.



The D100 fixed disc drive.

CII-HB offers compact 120Mb disc for under £2,000

UNDERLINING the need for DRI to catch up with the latest disc technology, the OEM division of CII-Honeywell Bull of France has announced a high-capacity version of its very compact "midi-disc" drives at a formidably competitive price.

Called the D160, the new model offers up to 120 Megabytes of storage in a disc unit only 12 in wide by 22 in deep by 5½ in high. It will operate mounted both horizontally and vertically.

The D160 comes with two, three or four 30 Megabyte discs in a sealed unit, and deliveries begin in the first quarter of 1980. The 120 Megabyte version costs $3,625 in OEM quantities, and the 90 and 60 Megabyte versions cost respectively $3,355 and $3,085.

The drives are manufactured by CII-HB's Belfort factory and marketed in the UK direct from France. They open up the possibility of a powerful desktop micro-business system with large capacity storage for a hardware price of about £5,000.

NCC information chief dies, 51

HEAD of the National Computing Centre's information services department, Tim Murphy died suddenly last Friday, aged 51.

He joined the NCC in 1967 as the head of its statistics and simulation department and took over as information services manager in 1970.

He leaves a widow and five children.

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Rockwell plant for Europe

MAJOR plans for European manufacture and marketing are germinating at Rockwell International's microelectronics division, and imminent announcements include a new 16-bit microprocessor on the product front, and collaborations with one or more European companies.

Rockwell is also looking for an offshore site for a microelectronics facility, which will initially assemble and ultimately fabricate and develop microelectronic components.

According to Malcolm Northrop, who heads the division, Europe is the most likely location, but Mexico and the Far East have not been ruled out, with Hong Kong the strongest outsider.

Last quarter of 1980 is the target start-up date, with an initial $5 to $10 million investment.

Northrop also revealed that 12 European companies are sampling Rockwell's 256K-bit bubble memory chips and one Megabit boards. The other major market sector which interests Rockwell in Europe is board level modems.

"We are restricted by an agreement with Codex from selling anything but board level modems," said Northrop.

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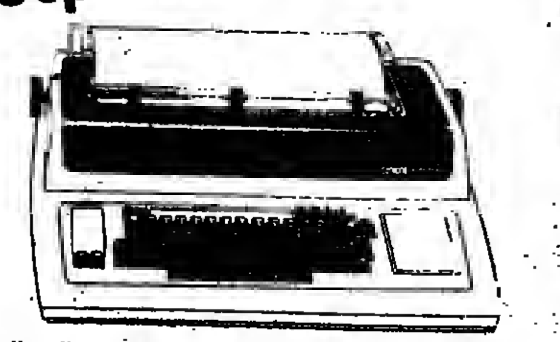

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Briefing

NEB-Grundy saga goes on

THE joint disc drive venture between Data Recording Instrument and Control Data, funded by the NEB (CW, May 3), would "go up in smoke" after the first two years without further capital and it was "a pretty obvious inference" that the NEB had refused to promise the DRI directors that it would put up further capital.

This was the view expressed by Lord Salmon in the Appeal Court last week when he allowed an appeal by DRI shareholder Grundy (Teddington), against the refusal by Mr Justice Vinelott to grant an injunction blocking the deal until a full trial was heard.

However, Lord Diplock, sitting with Lord Salmon, dismissed Grundy's appeal so it is now to be heard again, this time by three Appeal Court judges.

Growing market

OVER 85% of word processing equipment is installed in the US, although this equipment has still only penetrated about 18% of its potential market, according to Erv Stedman, chairman of the International Word Processing Association. He said that about 500,000 units were installed in the US at the end of 1978 and the market was growing at a rate of 30% a year. Word association in UK — Page 9.

Top-end addition

A TOP-END member for its powerful 24-bit 500 series of minicomputers is on the way from Harris, and is likely to appear at the NCC in New York next month.

Back to work

IT now looks hopeful that the 16 Systems X staff on strike at GEC's Coventry sites (CW, May 3) will soon return to work. Their union, ASTMS, is recommending that the men return to work "pending talks between GEC and the ASTMS national executive committee."

Strike ends

CIVIL Servants, on strike at government computer centres over a promotion-related ruling by the Civil Service Department (CW, April 3), were instructed to return to work this week, by their union's executive council.

Buyer for Insac?

IF, as seems likely following the comfortable Tory win in the General Election, the NEB's holdings in profitable companies come up for sale, sources close to one of the Insac members say that there is a large company keen to buy Insac intact.

Japanese delegation

THE delegation on software from Japan's major computer manufacturers (CW, February 1) which will be having discussions with the Computing Services Association is now expected to visit the UK in early June.

CARY . . . : drain on resources.

IBM—'the most discovered, most interrogated, most investigated company in history'

"LIKE Pinocchio's nose, the trial gets longer and longer and more and more bizarre," chairman and chief executive Frank Cary told IBM stockholders at their annual meeting last week.

He was speaking of the US Justice Department's anti-trust suit against IBM, which was initiated over 10 years ago.

IBM was becoming "the most discovered, most interrogated, most investigated company in history." He mentioned that legal costs were a drain on the company's resources, but did not put a figure to them.

The meeting formally approved the four-for-one stock split which will mean that, after May 10, IBM shares will be priced at under $100 for first time since before the war.

Existing IBM shareholders will retain their existing certificates, but the value of each will decline by three-quarters, and each holder will be issued with certificates giving them three additional shares for each one they hold.

Purpose of the split is to encourage wider ownership of IBM, and hence a larger potential lobby on behalf of the company.

'Amdahl will have 20% of big systems market by 1983'

A BRIGHT future for Amdahl Corp operating in an overwhelmingly IBM-compatible world is forecast by a firm of New York stockbrokers. By 1983, Amdahl is expected to have cornered a remarkable 20% of the market for large scale mainframes by number, and 18.5% by value.

Having made life more precarious for the traditional mainframers, plug-compatible manufacturers are likely to do the same for the minicomputer manufacturers, and the most likely winners in the plug-compatible stakes are Amdahl and Itel at the top end, and those concentrating on minicomputers which run IBM software at the bottom end. Mid-range specialists like Magnuson and IPL Systems are likely to be squeezed.

The report comes from New York stockbrokers Paine Webber Mitchell Hutchins Inc and takes a comprehensive look at the plug-compatible mainframe business.

It anticipates that Amdahl will have an average growth rate of between 25 and 30% over the next five years, making it a $1,000 million company in 1983. Paine Webber perceives Amdahl's internal strengths as excellent management, a long-established and stable design team, and the correct choice of market sector in which to operate.

Amdahl is currently benefiting from the fact that IBM is tending to take its largest profit slice from the top-end machines, using this to subsidise prices on new machines like the mid-range 4300s. This enables Amdahl to maintain high margins, and the analysts believe that the more powerful Amdahl models cost very little more to build than the smallest V/5.

Other benefits which Amdahl reaps from operating in this market include greater user

● Turn to page 4

IBM trails ICL by a year on word processor software

DETAILS have been announced of IBM's mainframe software for its communicating word processor, the 3730 — but it will not be available until a year after ICL's comparable offering, Wordskil Manager, which goes with the ICL 7700 word processor (CW, April 26).

ICL says that Wordskil Manager will be available for VME/B in August, but the IBM Distributed Office Support system, which enables the 3730 to communicate with and through a 370, 3030 series or 4300 processor, will not be available until the third quarter of 1980.

The facility to attach a 3730 to a 370 will be available in January 1980, but users will have to wait another six to nine months for the mainframe software — or write their own.

Facilities in the DOSS software package, which runs on the mainframe under CICS/OS/VS or IMS/VS, include document storage on the host; interactive search of these for transfer to the 3730; 3730-3730 message switching via the host; document security; and support for archiving and retrieval from the host files as an alternative to using the floppy disc on the 3730.

For this the user will pay £451.60 per month (£5,400 a year), which compares with a one-time licence fee of £8,000 for Wordskil Manager. There are several options, each available for an additional monthly fee. They include a direct document viewing facility, £109.50, which

● Turn to page 16

Itel's top end challenge

WITH the sales prospects for its smaller IBM compatible processors threatened by the low-cost IBM 4300 machines, Itel has launched a major new offensive at the top end of the IBM market with the introduction of a series of IBM look-alike processors with performances between six and 12 million instructions per second.

The machines will be added to Itel's Advanced System family and are scheduled for delivery in 1981. They will be developed jointly with Hitachi of Japan, the firm that already builds the two top AS models.

The new AS machines will probably be derivatives of the M-200H introduced by Hitachi last year.

Gould raises its offer for Fairchild takeover

IN a quick response to the rejection of its $300 million bid for Fairchild Camera and Instrument, the Illinois-based electronics group Gould has upped its offer from $54 a share to $57. Fairchild shareholders also voted at the annual meeting to stop their board from issuing preference shares as part of its defence against the takeover.

Gould's first offer was rejected last Friday, but the group came up with its new bid on Saturday and declared its intention to tender for 2.5 million Fairchild shares at $57 a share cash.

Despite strong suggestions in both London and New York that GEC might launch a counter-bid for its microelectronics partner (CW, May 3), a Fairchild spokesman told Computer Weekly that there were no negotiations with any other company "at this time."

Fairchild simultaneously announced first quarter profits up 23% at $7.056 million on turnover up 25% at $146 million, and said that its order backlog was 65% up on the same quarter last year. The company believed the figures supported its view that Fairchild had a bright future as an independent company.

Good start to Compec Europe

THE growing sophistication of the Belgian market for computer products was evident at the Compec Europe exhibition, held in Brussels this week. Great interest was shown in the small computers and peripherals which are the building blocks of the systems designer and constructor.

Although computing in Belgium has been dominated by the mainframe suppliers there is now a growing awareness of the low-cost alterations provided by mini- and micro-based systems, as was apparent from the interest being shown by visitors on the stands of companies such as Tandy and Ohio Scientific.

This was confirmed by Dr Colin Jackson, who has been appointed head of Logica's new operating subsidiary based in Brussels. Dr Jackson asserts that "users in Belgium are moving quickly towards the development of distributed processing systems and the increased use of mini- and microcomputers and data communications."

Logica chose Compec Europe for the first public presentation of its new subsidiary, which has a substantial base of existing business on which to build. Clients of Logica based in Belgium include the EEC Commission, ITT, Essochem, SKF, and the Belgian police.

If the steady flow of visitors which quickly filled the exhibition hall on the first morning is anything to go by, Logica's new Belgian subsidiary is opening up at the right moment in what appears to be a fast-developing market.

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INSIDE THIS WEEK'S CW.....

THE QUESTION MARK

THE ballyhoo of the hustings is now behind us, and the Tories are in the driving seat. What is that likely to mean for the future of the British computer industry and our embryo microelectronics ventures? In an open letter to Mrs Thatcher, Computerview poses some urgent questions. Page 2

SHIFT GAME

At some large sites the prestige of the shift can result in the wrong attitude towards other personnel. In Op Spot Bernard Allen looks at some of the problems this can cause. Page 8

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COMPUTERVIEW

The Conservative victory at the election puts a question-mark over the new government's attitudes to computing and microelectronics. We put our views here in an open letter to the new Prime Minister....

An open letter to Mrs Thatcher

DEAR MRS THATCHER,

Well, you've done it. You've led your party to victory. And you are no doubt quite justifiably proud to be the first woman Prime Minister.

But despite the euphoria and the Champagne, real life goes on and the hopes and fears of millions are bound up in the decisions which you and your Ministers will be taking in the weeks and months ahead.

You may feel that with inflation, unemployment, the unions, Northern Ireland and the Common Market you have problems enough to consider. However, I make no apology for drawing your attention to another subject, or rather two related subjects — computers and the growth of an "Information society" — which require your urgent attention.

Urgent? Yes, because they will increasingly shape our future and decisions about industrial strategy, support and intervention in the computer field, which may seem to be of relatively low priority compared with some of the burning issues which you are now facing, but may have very considerable long-term significance.

My use of the word "intervention" was intentional because although it may arouse much the same sort of reaction in the hard-line Tory that the word "profits' provokes in the dyed-in-the-wool Socialist, it is a great deal more than just a dirty word.

Intervention is an essential tool of government in any modern state and that includes such supposed bastions of free enterprise as the US, Japan and France.

Now is the time to drop the dogma which appears to be an inescapable feature of election campaigns and to adopt a more pragmatic approach in which intervention will undoubtedly play its part. But let us look at some specific situations which demand such an approach.

First and foremost the National Enterprise Board, which has taken such a hammering from Tory critics, must stay. It is not just that the need to restructure British Industry is self-evident, but that market forces and conventional sources of capital have not proved to be adequate agents of change in our society.

The NEB, if used wisely, can be such an agent of change, as has been demonstrated by the formation of Insac and Inmos, rather than being regarded merely as a repository for lame-duck industries. Indeed, now that the need to encourage innovation by assisting in the formation of small companies is widely appreciated the role of the NEB could, if anything, be widened.

Please do not succumb to the arguments of financial experts like Mr du Cann, who may well advise you that adequate sources of risk capital for companies engaged in technological innovation already exist. It is the business of the City to make money and the business of the government to look after the national interest. The two ends do not always coincide.

Speaking of the NEB inevitably raises the question of Inmos and the initiatives taken by the Labour government to promote the understanding and use of microelectronics in the UK. The fact that Jim Callaghan seemed to be making the microcomputer revolution his own personal crusade should not blind you to the merits of the case.

A national capability in the design and use of microelectronics is important. And while the degree to which we apply microprocessors may be more significant than manufacturing them, the Inmos experiment is a far-sighted and imaginative attempt to obtain a British foothold in an industry dominated by the US and Japan. Vision of the sort which was required to back Inmos is not such a common feature of government that you can afford to reject it out of hand.

Although microelectronics has seized the public imagination, it must not be forgotten that the NEB has substantial holdings in ICL, Ferranti and Data Recording Instrument Co. The suggestion that such investments should be sold off will strike many as a strange way in which to treat notional assets which have been built up with the aid of the taxpayers' money. Moreover the possibility that sizeable interests in companies like ICL and Ferranti could fall into foreign hands is totally unacceptable.

These are just a few of the issues which are raised by your victory at the polls. But they are certainly not the only ones which are of concern to those with an interest in the computer industry and the impact of computers on our society.

The provision of computer education for secondary school children is, for example, an issue which has been taken up at national level in the US and France, to name only two countries which are planning to make microcomputers widely available throughout their secondary education system.

Yes, intervention again. But to abjure it for reasons of party dogma would be to deprive the UK of the support which, in an increasingly competitive world, other governments are providing.

Please forgive the length of this letter, but these issues are important.

Yours sincerely,

A WELL-WISHER

COMPUTER WEEKLY

Vol. 26, No 552
Thursday, May 10, 1979

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IPC Electrical Electronic Press Ltd, Dorset House, Stamford Street, London, SE1 9LU.
Telephone: 01-261 8000.
Telegrams/Telex: 25137 BISPRS G

Branch Offices:
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New York: 205 East 42nd Street, New York, NY 10017.
Tel (212) 867 2080. Telex 421710

Published weekly on Thursday

Registered at the Post Office as a newspaper. Price per copy 18p

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Requested Readership: 01-837 3636
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Computer Weekly has a circulation each week of over 82,000 including the highest fully requested circulation in the UK. The International edition, which is published 10 times a year has a circulation of over 94,000.

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Controlled Circulation Department: IPC Business Press (Sales & Distribution) Ltd, 40 Bowling Green Lane, London EC1R 0NE. Tel: 01-837 3636. Subscriptions for readers outside the above categories: One year, UK £14.50; overseas £20, USA, Canada $52. Students £7.50, overseas £10; USA, Canada $26. Airmail rates on request.

ISSN 0010-4787

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Ten years ago...

COMPUTER WEEKLY MAY 8, 1969

ONLY $250 million was spent in the US in 1966 on proprietary packages, of the $14,000 million which went on development and purchase of computer programs . . . Prime Minister Harold Wilson replied to a question in the Commons that computerisation in the Civil Service was proceeding quickly . . . UCC of Dallas took over Datel . . . The USAF Defence Command awarded RCA two contracts totalling $1.7 million for expansion of the missile warning display system.

Marketing man wins Coventry

COVENTRY South-West was won in the General Election by the Tory candidate, John Butcher, regional marketing manager of General Computer Systems. The Conservatives gained the seat from Labour with a majority of 5,654.

Computer people who were unsuccessful candidates in the General Election included Philip Rule (Liberal) at Lichfield and Tamworth, another seat which the Tories gained. Rule received 7,408 votes.

In Chertsey and Walton, Shaun O'Byrne, a consultant with Logica, received 12,211 votes for Labour and the Liberal candidate for Acton, Simon Rowley, polled 3,548 votes. He is a salesman with Eurocom.

The Liberal party was represented in the Labour seat of Islington Central by Margot Dunn, administrative manager of the IDPM, who received 2,242 votes.

FOCUS

Training in bad habits

FEW, apart perhaps from course organisers, would disagree that there is considerable room for improvement in computer education and training. In fact it would take several rooms to sort out adequately the present industry limitations.

According to Computer Weekly publicity the "rapid growth of the computer industry calls for a continuing army of fully trained software personnel geared to cope with the challenge of new concepts and technologies that are emerging all the time."

Present-day courses, however, seem unlikely to provide such guidance. The army of lecturers, for a start, are more likely to be at home in the staff common room than the installation rest room. Any grappling involving new technologies will be limited to the overhead projector and automatic slide controller.

Often, only bad habits are learnt at training sessions and courses, with the more memorable parts being the after-dinner visit to the local inns. This aspect of course life is even more evident as training and education courses are becoming identified as fringe benefits rather than basic requirements. No longer, it seems are students content to book into accommodation in down-town Uxbridge or Hatfield. More favoured locations now feature Vienna or Monte Carlo, though it is doubtful whether diligence is enhanced by the knowledge of the high fee being paid out by a benevolent employer.

The current emphasis on technical training seems misplaced. Training, especially in the case of operators, should be limited to the installation. The average training classroom presents an unreal world — one involving fictitious applications, timescales and resources. Everyday installation aggro is as remote as the presence of the computer sales team.

Maybe it is time that the training emphasis was switched to the DPM himself. It is DP management who currently need more education. How to cope, for example, with a recalcitrant operating team who would apparently prefer to mount pickets than tapes. Or how to keep equipment up and running, when the running involved requires the stamina of a Computastars contestant. Or how to introduce new techniques with last year's budget.

As Computer Weekly points out at intervals, there is a severe staff shortage in the computing industry. Getting into computing must be made as smooth as possible. Sticking exam fetters on all potential entrants will not help the general cause.

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Add-on core memory for PDP-11 series
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Europe can succeed in semicons in the long term

Martin Banks reports from New Orleans

THE opportunities are there for European companies to succeed in the world semiconductor market, but it will take the next decade to achieve this. This view was expressed by Dr Gernot Oswald, a Siemens vice-president, speaking at the Morgan Stanley Semiconductor Forum in New Orleans last week.

He suggested that the growing influence of systems-based requirements was producing a need to concentrate on sophisticated components, which included not only microprocessors, but also interface and controller chips.

Discussing the development of the industry and the recession that had been forecast, Jerry Sanders, chairman of Advanced Micro Devices, said that silicon processing is today's crude oil, itself a factor in the last recession in 1974. Customers, he said, were now coming to AMD to discuss long-term plans and requirements.

He highlighted the major shortfall areas in the semiconductor industry. These included the MOS business generally, which was currently running up to 50% greater bookings from customers than billings to customers. Also, low-power Schottky products had severe capacity limitations and this situation, he thought, would get worse next year.

Sanders said that IBM had been to AMD to try to find its 1980 components in this area without, it appeared, any success.

The Morgan Stanley forum also covered the personal computer market, and dealing with the development of these systems as communications tools, Jeffrey Krouss, Federal Communications Commission associate director of plans and policy, said the FCC would not be a barrier to the growth of this market.

American manufacturers already saw communications as one of the major areas for growth, and Krauss said this would be encouraged by the FCC.

He did, however, point to two possible problems that might be encountered. The first was the price rate structures in communications which were, he said, wrong.

The second problem was the potential threat that existing common carriers would get personal computer manufacturers included among their number. Krauss could see no reason to regulate personal computers as common carriers.

The problem of radio frequency emissions, which has beset Texas Instruments (CW, January 11), is seen by the FCC as being largely the responsibility of individual suppliers, where interference was caused. Krauss hoped that companies would accept that responsibility.

At present TI has put in an application to alter Section 15.419 of the FCC regulations, which deals with integral RF modulators, to cover standalone modulators for the TV sets at the low end of the range.

The FCC position is that regulations could be changed or created only when there was proof of general public need, and not for individual company requirements.

Additional weight is added to the FCC argument by the fact that Atari, which is planning to enter the personal computer market in August, has been awarded FCC approval for both its models, the System 400 and the System 800.

Profile of the power of IBM's H series

A US leasing and finance company has done some sums and come up with a performance profile for IBM's forthcoming H series, scheduled to replace the 303X line.

Computer Financial Inc of New Jersey, in the French weekly Ordinateurs, quotes four H-series models. At the top is a formidable machine with a rating of 15 mips, three times that of the 3033, and up to 40 Megabytes of main memory. Price for such a processor is estimated to be about $5 million.

At present, no production machine is installed with more than 16 Megabytes of main memory, although a new 32-bit back-end processor from Norsk Data will offer up to 32 Megabytes of extended main memory.

The next H model, says CFI, will have a mip rating of 11, and up to 24 Megabytes of memory for $3.5 million. The direct replacement for the 3033 will be a little more powerful but cost about half as much, $1.9 million.

Smallest systems will be a 3032 replacement with 8 Megabytes of main memory, a mip rating of 3.2 (compared with 2.75 for the 3032), costing $1 million, less than half the price for a four Megabyte 3032.

Other forecasters expect the H series to include a diversity of specialised processors within the central processing unit, each running a part of MVS. However, it is thought that this may initially be confined to a separate database processor, since any too radical a change could frighten users into the arms of Amdahl and Itel.

Govt panel sought for Welsh computer education

CONCERN over the future of computer education in Wales has led to the Welsh Joint Education Committee being asked to set up a special panel to look at the problem and to co-operate the efforts of funding bodies, government departments, schools and colleges, and industry.

According to John Davies, head of the WJEC's further education department, the principal problem is lack of resources, and so he wants the panel to involve the agencies that provide funds, such as the Manpower Services Commission and the Department of Industry.

To this end he has had meetings with these bodies as well as with the Welsh Office education department, the DES, and the Council for Educational Technology.

Welsh industry will also be consulted to establish its needs. Then the main task will be familiarisation of teachers, and in-service training.

1984 and all that...

CONTRIBUTIONS from readers are welcome to our column of the strange things people say in the media about computers. We will pay £5 for each cutting or excerpt from a broadcast that we print.

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Advertisement in the Los Angeles Times

Bottom-end bargain sale at IBM

THE General Systems Division of IBM is holding a clearance sale of its bottom-end CPUs. Involved are the almost-defunct 5100 and System 32 and the company's leading low-cost business product, the 5110.

Most dramatic are the cuts on the purchase prices of the Systems 32 office computer, which come down 30% across the board, cutting it to £14,054 to £21,606, depending on the size of integral disc. It was previously in the £20,000 to £30,000 range.

System 32 rental prices are unaffected.

The 5100 tumbles to £3,579 in minimum configuration, which includes the integral screen and tape cassette.

A similar 17% cut, to £5,617, is made on the 16K-byte 5110; the larger 64K-byte model is cut by 11%. Both machines are available on purchase only.

Cuts of 17% in the purchase prices of the 5103 120-cps printer, 5106 tape unit and 5114 floppy disc drive have also been made.

Datev leads rescue of Regnecentralen

THE crisis at Regnecentralen, Denmark's national computer manufacturer, seems close to resolution following commitments from major customers to continue buying the company's equipment, and discussions of possible financial support.

Last week, it was announced that following an unexpected loss from a subsidiary, all the company's employees had been given notice (CW, May 3).

Leading the list of major companies determined to ensure that Regnecentralen remains in business is Datev, the big German service bureau for tax consultants and accountants. Datev has almost completed installation of a comprehensive network of RC3600 remote terminal systems.

"Datev has expressed interest in some kind of participation in the restructuring of Regnecentralen," John Kimmel, marketing director for Germany and Holland, told Computer Weekly.

"This does not necessarily means financial participation; we may be able to finance continued production from our own resources.

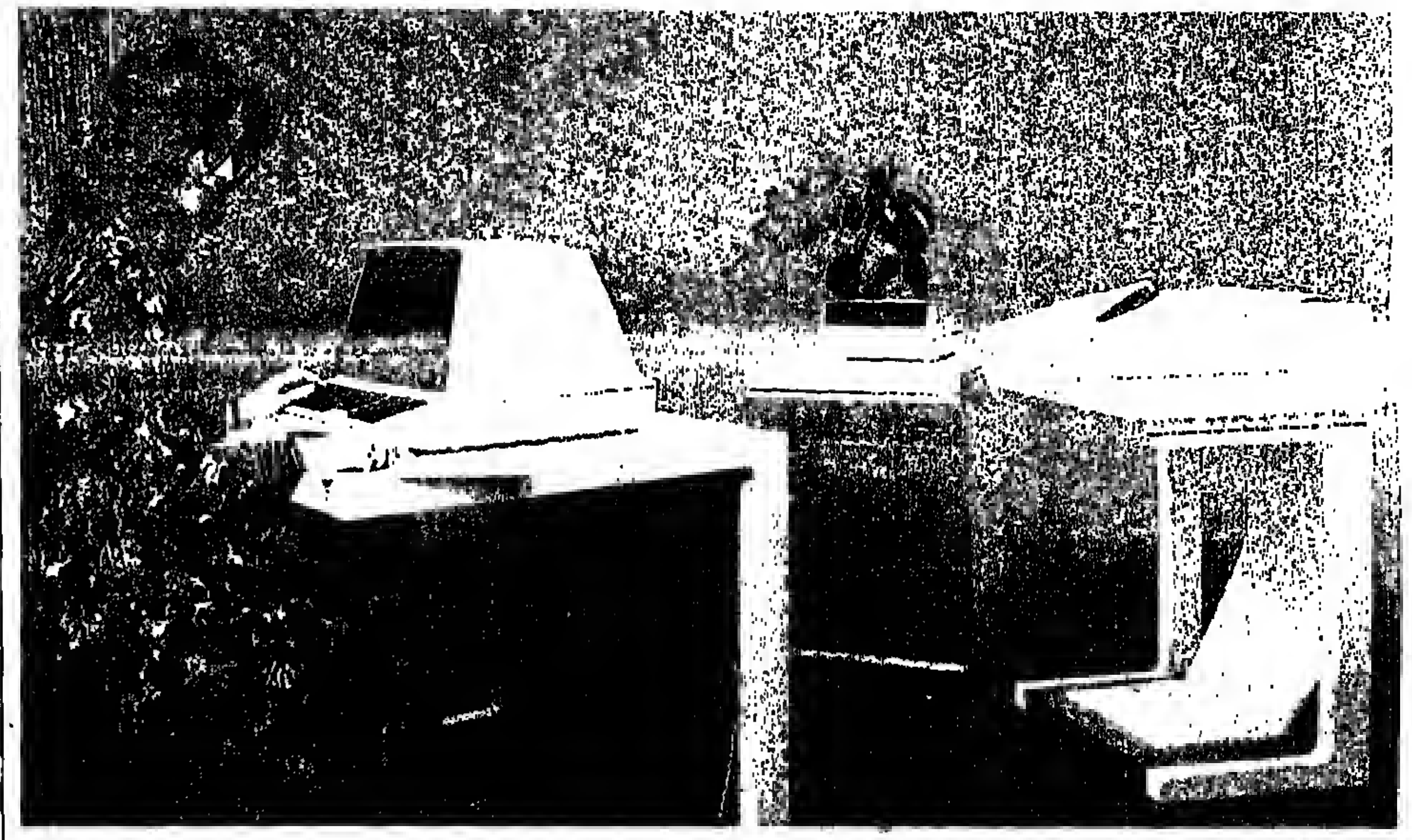
"We have been carrying out a major market study in each of the countries where we operate, and we have been surprised at the strength of the market for our products, particularly the communications products like the RC3600."

In the US, Lockheed is marketing a database system based on the RC8000 24-bit computer which is used for answering telephone inquiries.

"We have been having talks with Lockheed and they want to continue marketing the product," said Kimmel. "A large Dutch service bureau is also interested in participation, and the commitment of these large companies to continue buying our products is very encouraging and helpful."

The three main arms of Regnecentralen's business are a major chain of bureaux in Denmark, and manufacture and marketing of the RC8000 and the RC3600.

A major Regnecentralen customer in the UK is the European Centre for Medium Range Weather Forecasting at Shinfield Park, which is establishing an international star network.



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Cosy number for linguists

WE in the computer business are often accused of trying to turn everything in the world into numbers. Well, now I can reveal that we are not the only culprits. A civil engineer I know who works for Ove Arup let slip to me that the conversation around her office consists almost entirely of numbers these days.

It seems some time ago they realised they were talking largely in clichés, and so to simplify things they drew up a list and gave them all numbers. It is surprising how few phrases will do to suit most occasions. For example: (2) Oh my God! (9) Pass. (13) Don't give me that! (19) That's true, that's very true. (23) Pas de problème. (27) Do be awfully careful. (30) Over the top! (39) PDQ (Pretty damn quick). (52) I'm pretty laid back about this.

Lots of offices develop their own private language, of course. Has yours? In a lab where I once worked, the inevitable answer to the question "How do you do such and such?" was "With considerable difficulty."

At MIT a few years back people would talk in numbers quite naturally. (For all I know, they still do.) You would hear people say "I'm going down to 50-340 at 10:30 to do a 6.41 run on the 7094," and it would sound perfectly normal.

(Let me translate for the uninitiated. 50-340 is a building and room number. 6.41 is a course in the Electrical Engineering department (6): "Introduction to Electronic Computers". If you don't know what a 7094 is, your youth is showing.)

One undergraduate got someone to send him a letter with nothing on the envelope apart from two numbers: his student registration number and the post code thus:

631470
02139

and he got it! Apparently it arrived at the Cambridge, Mass, post office where they said, "Oh, some clown at MIT," and sent it round.

Favourite number?

TALKING of numbers, it seems the computer world is fast running out of them — but when it gets hold of a good one, it just won't let it go. In perhaps unconscious obeisance to Britain's most successful and beloved computer line yet, new 1900s are bursting out all over.

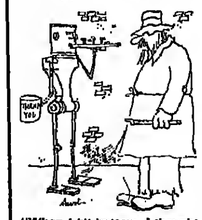
The Storage Technology 1900 is a series of rack mounted tape drives, while Kienzia has chosen the name for its new low-cost office computer. And then there's the Olivetti 1900, better known among the cognoscenti as the Microdata Express. I'm calling my new TP monitor George.

Unacceptable face of DP

AS others see us: Recently, the Guardian's cartoon strip on the Women's Page, "The Silent Three", quoted a young lady thus:

"You know, I met a bloke the other day, who was really quite O.K. . . . Well . . . he wasn't much cop . . . computer systems analyst . . . rather weedy looking . . . a very ordinary bloke . . ."

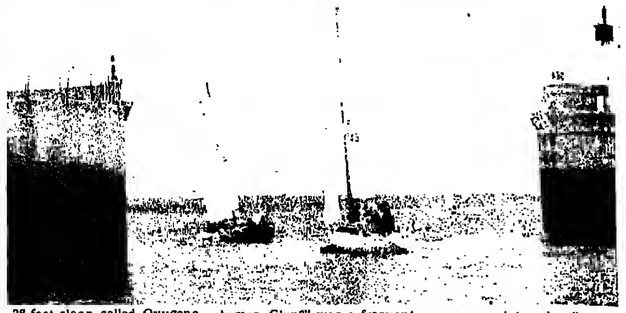
Oh, well, back to finding another career. I suppose we could try being airline pilots, or oil company executives, or international jewel thieves. Mind you, somebody in a pub once told me I looked like a chartered accountant. Is that better or worse than being a weedy-looking systems analyst?



"When I hit bottom, I thought that at least I'll never be squeezed out by automation . .

Life on the ocean wave...

. . . in which our intrepid Rory Johnston becomes an Infornautician



YACHT racing has been compared to standing under a cold shower tearing up five pound notes. Having taken part in the second Coupe de l'Informatique, the French computer industry's four-day race around the Gulf of St Malo, I can confirm that when the wind is howling away at 30 knots, and the rain is pelting down, and you have your legs dangling over the weather rail with seas breaking over you, you are sorely tempted to agree with this view.

The race was organised by AFIN, the French equivalent of the BCS, and taking part were 46 yachts sponsored by a wide range of firms such as Logabax, Cisi, CGS, and Europe Informatique, as well as such well-known French companies as Control Data, Digital Equipment, ITT, and Data General.

Representing the Rest of the World's computer industry was one crew consisting of three old salts from Manchester-based software house Master Resources, a sail-maker friend of theirs, and yours truly, hastily appointed Computer Weekly's yachting correspondent.

Our boat was a spanking new 28-foot sloop called Oxygene, with a French skipper. This caused us some trepidation beforehand. "What on earth is the French for 'clew outhaul'?" we wondered. In the event the skipper spoke English but several times he forgot it in the heat of the moment and would point frantically, shouting "Pool ze zing! Ze zing under ze boom!"

Despite this we didn't do badly, avoiding the blunders of several crews who merrily sailed the wrong way round buoys, and so on.

The first day's leg, from St Malo to Jersey, was the most frantic: A reach with winds varying from 15 to 30 knots, reefs going in and out all the time, and your reporter feeling distinctly green about the gills. "Why don't you steer around the bumps, Glyn?" was a frequent complaint to the helmsman, who replied that at least he was staying out of the holes.

The second day's run to Granville from Jersey, with the wind aft and the spinnaker up, was a lot more tranquil, but still the sun refused adamantly to shine. The third day's racing was called off, owing to forecasts of force eight gales and "mer agitée," but as luck would have it the sun shone for our sightseeing in Granville.

The final leg back to St Malo was close-hauled with plenty of wind and rain, prompting someone to say, "You know, there are people who wouldn't understand that this is pleasure." In the final results, I can assure you that the Rest of the World was not disgraced, as we came 14th out of 31 boats in our unmeasured (not handicapped) class, Situ coming first.

Control Data was winner of the measured class, beating the real star of the race, a huge, beautiful former America's Cup contender named Aquitaine, entered by CII-HB.

Despite not placing, we were generously presented with a special prize for having defended the Rest of the World's honour — a medal and certificates conferring on us the title of "Infornauticians."

Mnster Resources is thinking seriously of organising a British equivalent race for next year, and would like to hear from anyone in the industry who would be interested. Contact Noel McLean at Langley House, Stanneylands Road, Wilmslow, Cheshire SK9 4HA. Tel 09664 32127.

Amdahl impacts big systems

● From front page

sophistication, which means that support costs are likely to be less than for mid-range manufacturers, and the easy identification of potential customers, which gave the company a formidable return of $4 million per salesman in 1978.

The principal threat on the Amdahl horizon is the forthcoming IBM 303X replacement line, the H-series. But even this could well work in Amdahl's favour, according to the report.

Although some observers expect the first H-series models to make their debut this autumn for delivery in late 1980, Paine Webber believes that IBM may still be under-estimating the demand for its latest products. If so, a bigger than expected backlog for 4300s would inevitably delay the introduction of the H-series, giving Amdahl more breathing space to develop its next generation. The long delays on the 303X machines actually boosted Amdahl's business since it could offer better delivery dates. Meanwhile they forecast an Amdahl 470V/9 before the end of the year.

In the mid-range of the mainframe market, Paine Webber sees a tough time for all IBM's competitors, both compatible and non-compatible. Manufacturers like Magnuson, Citel and Nanodata are still in the start-up phase, and may well find it difficult to raise more capital following the 4300 launch. Meanwhile now that it is so cheap and straightforward to design a machine to run almost anyone's system software, the traditional mainframers like Burroughs, Honeywell and ICL are likely to come under PCM attack.

Paine Webber believes that an inexorable shift towards IBM-compatible software throughout the industry is under way — which echoes the view of Gene Amdahl (CW, December 8, 1977). They forecast that by 1983, the combined value of installed IBM-compatible CPUs in the middle and large mainframe market will have overtaken that of the installed base of every other manufacturer, estimating IBM's share at 64%, that of the PCMs at 11%, and that of Honeywell, at present the world number two, at about 7½%. Only Burroughs and "others" (presumably ICL, Siemens, Nippon Electric) are forecast to increase their share from its present level.

They cite the 370 emulation facility which Univac offers on the 90/80 as a pointer to what other manufacturers will have to do, and in this context, it will be interesting to see whether Univac incorporates IBM compatibility right through the line it is preparing to announce at the NCC as the 80-series successor (CW, March 15).

At the bottom end of the mainframe market, they see a problematical future for the minimakers, with four PCMs in particular causing trouble.

The four are Two Pi, National Semiconductor with the System 400, Cambridge Memories with three unannounced machines, and Interdata with the Kardios "Duo" 370 emulator on the 7/32 and 8/32 minis.

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The first Intel Fair was held in 1976 and it has grown in size and stature every year to become one of the most significant events in the diary of the microcomputer engineer and project manager. Intel Fair '79 will be no exception to this rule offering, as it does, four simultaneous seminars, an exhibition and a video demonstration room.

A visit to the Fair is an excellent way of up-dating yourself on the latest developments in microcomputer technology and actually seeing some of the latest applications. We will be announcing and providing details of four very significant new products at the Fair. They are the world's first 1 megabit bubble memory device, the world's most advanced 8-bit microcomputer, the first I/O controller which enables mainframe peripheral handling techniques to be applied to microcomputers, and a new COBOL compiler.

Many of the seminar papers will cover applications, and there will be special presentations for the Process Control and Data Processing engineers in addition to a series of papers for newcomers to microcomputers.

Visitors to the Fair will have every opportunity to follow their own individual interests and will be able to discuss their design problems with experts from the UK and from Europe and America, who are coming over especially for this event. Customers who have developed a microcomputer-based product will be presenting papers at the seminars and will be demonstrating their products at the exhibition. This provides an excellent opportunity to discuss the experiences they had in bringing their products to the market place.

The main objectives of the Fair are serious. However it is, after all, a Fair, and we try to promote a 'fairground-like' atmosphere with some occasional light relief. It is an ideal opportunity to meet people who can advise you, if required, or who are in a similar stage of project development as yourself. So come along! Meet us, meet our distributors, meet our customers, learn a great deal, and enjoy yourself in the process.

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Brewers to market vehicle software

A VEHICLE maintenance system, developed by Allied Breweries for its own use, is to be marketed by the company both as a package and in the form of a bureau service.

Called Abcas, the software provides regular detailed information on the running of each vehicle and is said to be applicable to any fleet operator maintaining more than 50 vehicles.

Among information provided is the type and frequency of any repairs; fuel consumption; and details of servicing. A key section is an exception report highlighting such things as servicing irregularities.

Abcas is said to have saved Allied £8,000 a year when applied to its fleet of 5,000 vehicles, and will be sold for in-house use for £10,000. Alternatively, Allied will run the software as a complete service for clients at a cost of 00p per vehicle per month.

GILB'S MYTHODOLOGY

Data collection forms pollute DP systems

COMPUTER input data collection forms are so common and traditional as to be above question. We force various innocent people to fill in these forms, and thus make them accomplices in the pollution of our own data processing systems.

It is commonly believed that the forms somehow add speed of processing and reliability to the data collection and data entry process.

I should like to argue that this is, no longer true. It may have been true, some decades ago. It may even be true in limited instances today. But in a large number of cases where we are using o form, we are really misusing it, and doing our own reputation a disservice.

The main difference is that the cost and practicality of automating the functions of a form have vastly improved in favour of the computer.

First, practicality. What is a data entry form? I have managed to identify in my own mind three main functions of the form. To instruct us as to a particular sequence of input data. To instruct us as to a particular format, a "standardised" format. To instruct us as to what constitutes a complete set of input data elements.

In short, the form is a program for people. I suggest that all these functions can and should be automated. They can be automated by getting those who fill in the forms to key in natural data formats, in the natural sequence in which they occur, and to get the computer to remind people, sooner or later, about the missing needed data elements.

In one sense, we are talking about an automated form, and a "smart" form. We are also talking about the elimination of a whole traditional work process, of filling in paper forms. We shall have to spend much more effort in the design of such systems. Many present forms reflect a lack of serious design effort. And we shall have to write more sophisticated programs to handle the intelligent form.

I know the mere thought of writing more program code has the effect of scaring programmers into using the traditional data entry form. To save an hour of programming once, some would gladly spend several work-years of the office staff's time.

But we must pluck up our professional courage and make more use of the tools which fate has so generously placed in our hands: the ability to design programs and the machines to execute them.

The form functions should be automated because it will normally result in a faster processing of data from source to correct machine readable format. They should be automated because computers are more reliable than humans at such work. They should be automated because computers are cheaper, in most countries, than qualified human beings. The microcomputer technology gives a strong impetus to this wind of change.

The art of designing away the form is not very difficult, but few of our designers have received any training to do it. Very few have clear motivation from their environment to attempt it. It is not traditional, and tradition is stronger than common sense. Once designers are motivated and trained, it is really a simple process of automating the work previously done by humans in looking up codes, converting date and amount concepts to standard digital formats, and identifying the meaning of natural data elements.

One of the tools which make possible the elimination, or at least the strong simplification and modernisation of the traditional form, is the possibility of access to a file or database during the data collection process. The possibility of interactive dialogue and instruction from cheap microprocessors, perhaps coupled with equally cheap secondary storage for programs, files and instructions, adds substantially to the viability of form elimination.

But it would be a mistake to presume that database technology, microcomputers or interactive capability are necessary prerequisites for the elimination of the form. It can be accomplished to a large measure without these tools. Lack of them should not be an excuse for not trying to automate the forms function to a greater degree.

Ask yourself the following questions:

1. Could we benefit substantially if our forms were reduced, simplified or eliminated?

2. Have we taken steps to ensure that our designers (called analysts and programmers sometimes) really do know about and master the techniques for automating the form functions?

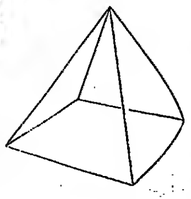
3. Does management set specific goals for our project products related to human productivity in data capture, which will force us to make use of such technologies where they are viable? Have we made it clear to management that an investment in this area of automation will pay dividends in terms of productivity, accuracy and speed of data capture?

Puzzler

THE square-based pyramid (right) has five vertices and eight edges. Can you label each edge with a different number from 1 to 10, in such a way that the sum of the edges meeting at each vertex is a constant of 18?

There is only one way to do this, not counting rotations and reflections.

See page 43 for solution.



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SOFTWARE FILE

By Peter Hewitt

Informatics' distributed DP support for PDP-11s

HAVING discreetly amassed a worldwide user base of 60 for its PDP-11 product Series IV, Informatics has revealed that the software now provides comprehensive support for distributed processing on minicomputer networks.

This it does with a sophisticated set of tools enabling even end-users to build linked interactive applications in an environment also including RSX-11M and DECnet.

As an illustration of the power of the system, Informatics cites one user who built a complete cargo loading and tracking application using Series IV facilities alone.

Although initially restricted to the PDP-11, the software may later be adapted to other minicomputers.

Series IV was originally announced 18 months ago as a data entry validation package for the PDP-11 (Software File, September 29, 1977). A key feature was the ability to implement a complete data entry application using a parameter language, without any conventional programming.

With release 5, data validation and entry (DVE) has become just one of three components of the package, which also includes a transaction processing system (Series IV/TPS) and software for distributed data processing (Series IV/DDP).

Required on each minicomputer in the network, DDP appears to provide many of the same functions as IBM's 8100 software, catering in effect for strict centralised control over a distributed application network.

When linked with Series IV/TPS, it allows applications to communicate not only with each other but also with IBM mainframes. Both 2780 and 3271 protocols are currently supported and central files can be updated on a daily, hourly, or online basis.

TPS itself is described by the company as "much more than a TP monitor" and is said to "facilitate local development and implementation of screen-oriented applications".

It supports up to 32 terminals, all of which can be running different applications, and its constituent real-time executive is also an integral component of DVE.

Because all the Series IV products run under RSX-11M, applications built with them can be freely interfaced with existing or conventionally-developed applications. There is also an interface to the Total DBMS.

However Informatics sees most PDP-11s as already fully loaded and expects most purchasers to install new hardware at the same time. Indeed it may well go into the business of supplying complete hardware/software systems, probably in conjunction with a systems house.

Since Series IV first appeared, it notes, the launch of the LSI-11 has halved the minimum hardware cost and a complete system could be bought for as little as £25,000.

Prices of the software alone are around £15,000 for TPS; £13,500 for DVE; and £7,500 for DDP. DVE is included in the price of TPS and quantity discounts are offered on all three components.

Earlier meeting

PRESSURE of work on the Ansi X3J4 Cobol committee during its first meeting in London, has obliged the BCS Cobol specialist group to re-schedule its evening meeting on May 23 from 6.30 to 6.00 pm. George Baird, manager of the US Federal Compiler Testing Centre, is to give a progress report on Cobol compiler validation. The meeting will be at the Clifton Ford Hotel, Welbeck St. W.1.

Prices, release dates for Cincom's TIS

CINCOM fleshed out its plans for TIS by announcing prices and release dates at its eighth international user conference, held in London.

Attended by over 250 of Cincom's 450 direct European customers, the meeting included the first European presentation of TIS, which was launched by the company in the US last year.

Release 0, it was disclosed, has been in beta test at US sites for some months now, including Johns Mansvills and the Oranga Cosst Community College. Cincom is to begin installing release 1 this month in the US, and will make the software available to selected European customers at about the end of this year.

This release will be restricted to OS and Environ/1 users and will include the direcory; batch and online query facilities; TIS comprehensive retrieval; communications management and communications monitor.

It will be available on unlimited release — referred to by the company as "absolute general release" — around the middle of next year. TIS Query — the successor to T-ask (Software File, June 15, 1978) — will by then be available in French and German versions in addition to English.

Meanwhile release 2, which will include all announced TIS facilities with the exception of the update preprocessor, should make its debut around spring 1980, and will be available in Europe about six months later.

Only two prices have so far been mentioned by Cincom. The minimum purchase giving basic batch DBMS facilities and the directory will cost about £50,000. The complete product will cost about £140,000.

For its first customers, Cincom will be looking to experienced Total users already skilled in data resource management and probably making full use of the data dictionary.

PROGRAMMER NOTES

Raising productivity with report generators

PROGRAMMER NOTES has in recent weeks argued that program generators could have an increasing role in improving productivity. Another option open to the hard-pressed DP department is the use of a non-procedural report generator package.

Packages of this type have been available for some years, well-known examples including CA-Earl, Mark IV, Easytrieve, and Quik-job. Depending on DP policies and the usability of the software, they may be made available either to DP staff or to end-users, or to both.

However the traditional mistrust of new higher-level tools — particularly the suspicion that they may be too restrictive or inefficient — has to some extent held back their acceptance.

In the light of the productivity crisis, though, an increasing number of installations will find some such tool essential. So it was interesting to receive a summary of an evaluation exercise recently carried out by one — anonymous — company.

Carried out prior to installing Pansophic's Easytrieve, the main purpose was to obtain some form of comparison between Easytrieve and Cobol. Two secondary objectives were to determine the potential scope for Easytrieve applications and to see how quickly it could be learnt.

Three user departments were selected at random and asked to provide details of reports which they could not currently obtain, but which would prove useful if they could be supplied at relatively short notice.

In each test case selected, the team studied factors including coding time; number of source statements; source code and JCL preparation time; testing and debugging time; and learning.

What appears to emerge from the limited information provided is that while dramatic savings are possible for simple jobs, for more complex jobs the savings are rather less impressive.

One job, for example, that took 332 Cobol statements was accomplished using Easytrieve in 9. The total time taken with Cobol was 8 hours 45 minutes as opposed to just 58 minutes with Easytrieve. Much of this saving was achieved in code preparation and verification, which took 3 hours 40 minutes for the Cobol and only 4 minutes for Easytrieve.

However in the case of a more complex report, a 352-statement Cobol program was replaced by as many as 140 statements in Easytrieve. The respective development times were 7 hours 25 minutes using the former and 3 hours 9 minutes using the latter.

While the summary available permits no deeper analysis, the discrepancy probably reflects the fact that all report generators have distinctive strengths and weaknesses. Not every processing job will be handled easily by a particular generator, and some may not be amenable to any generator.

The moral, therefore, is to choose one, if possible, whose capabilities are best matched to one's own habitual retrieval needs.

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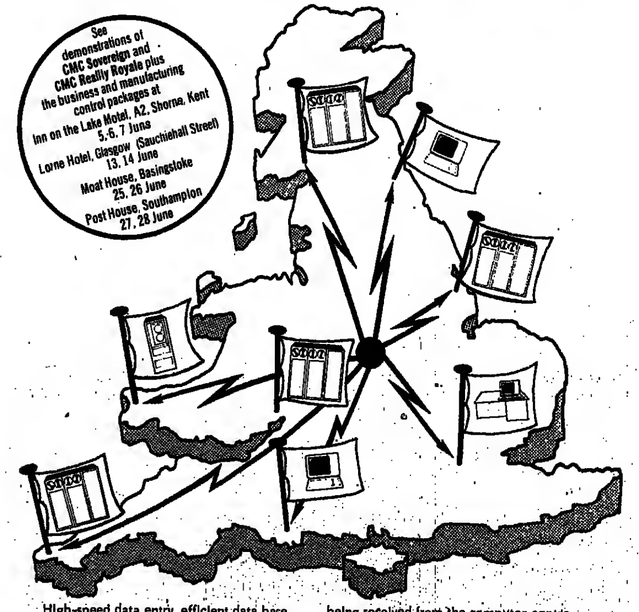

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OP SPOT

By Bernard Allen

Opcomm's ex-chairman breaking new ground

RUSS BEVAN, former chairman of the now disbanded operators' group. Opcomm, has left the Coventry installation of Rolls-Royce, and is now employed in the management services division of Rank Hovis MacDougall as a facilities manager, o position on a par with that of operations manager.

Bevan is currently being trained to toke over the running of one of RHM's bakaries, which have ICL 2903s together with 7502 terminals.

After his initial training, Bevan will be involved in relief work — moving about the country, covering RHM site managers who are on holiday or oway for other reasona.

"As aoon as a vacancy comes up, I will get a permanent installation on my own. I'm hoping to get a brand-new site. That would give me the opportunity to get involved in alte planning, recruitment, etc."

What ops wear doesn't affect equipment

"I HAVE no knowledge of the equipment used at the 'Ernie' site, but if I were to win I'd accept the wavy line cheque willingly."

Thus Dave Miller, a ahift leader at the Bristol installation of the Imperial Group, responda to a letter on operators and dress from Barry Denyer of Lloyds Bank in Worthing, Sussex.

In essance, Denyer had argued that dress reflects the attitude of the site aa a whole. He wrote: "Having a letter from 'Ernie' the other day containing some Premium Bond winnings, I was abaolutely amazed at the wavy line printing. I would imagine that the operators who produced the document don't hold with the 'collar and tie' idea."

Comments Millar, "His last paragraph left me feeling that he hasn't been operating long, or has been lucky enough not to work with printers similar to the ICL 1933 type where print is produced by a revolving drum.

"We had two at my aite for several years, and towards the end of their 'life' we were unable to get anything other than 'wavy line' print from them regardlesa of the time we spent setting them up, or the amount of time and trouble the engineers apent on them.

"I think that I can also say quite definitely that the print quality didn't vary when I wore a suit on the day ahift, or casual clothes on lates."

Rigours of shift work

MANAGEMENT ahould take more care when deciding upon the shift pattern their operations staff are to work. And operators should be given medicals regularly — every three or aix months.

I writo this after talking to an operator who gave up shift work on the advice of his doctor who described him as being in a state of "permanent jet lag".

The "Continental" shift pattern he worked involves working two day shifts, followed by two eveninga and three on nights. Then comes a two-day break. The next rota conaists of three day shifts and the one after that of three evenings.

● Shift work is a very important subject and I would like to haar your views on it.

Inter-shift competition is often counter-productive

ASK on operator to compare the two or three shift teams of his inatallation and he will almost certainly talk in glowing terms about his own, while pointing to the shortcomings of the others.

Ask for details, and he will mention how good his colleagues, particularly his senior colleagues, are from a tachnical viewpoint, and say that they always do the work more quickly and efficiently than the others.

Now some might consider that auch loyalty, and the competition that often exists between shifts as a reault of it, is good — but I am inclined to disagree.

In my view, operations staff should consider the installation as a whole, and both communicate and co-operate with tha members of the other shifts.

Relations between shifta are often good at the smaller installation, as instanced by a site where I was once employed as an operator. We worked a two-shift system, with two operators per team.

Both teams would try to get as much work as posaible processed during the day, and as a result the evening shift would often end well before the scheduled 11.30 pm finiah.

Of course, there was the occasional disagreement, but on the whole both teams worked well together and it was not unusual for one of us to start the evening shift early in order to help out.

But at the larger installation, things uren't quite ao good — often there is a complete lack of communication, or it exists only in the form of bickering.

At one installation I know of, the end-of-shift reporta were, and probably still are for that matter, littered with petty little remarks about the printars or card readera not being cleaned properly.

And at handovers, the lack of co-operation between the two sets of operators often resulted in jobs being left on the input and output queues far longer than necessary, and incomplete listings being returned to the user.

When relations between shifts are poor, the operations manager must involve himself by calling his shift leaders together in order to discuss the matter.

In fact, such meetings should be held every two or three weeks, anyway. And it is a good idea to include one or two operators from each shift so that they can have a say in matters affecting them.

Another way of improving relations is to swop operators between shifts for two weeks or so.

HINT OF THE WEEK

Adding comments to the hardcopy log under IBM OS

THIS week, the hardcopy log is the subject of a hint from Colin O'Keefe, assistant operations officer at British Airways in London. He explains how to add comments to IBM OS commands.

He writes, "This is very useful for the operator when he takes over the console from one of his colleagues. By looking at the hardcopy log he can, for example, find out why a job was cancelled or why a certain tape drive was taken out of operation."

According to O'Keefe, this is achieved quite simply by tagging the comment on the end of the command when typing it in at the console. Both command and comment are then routed to the hardcopy log by the system.

He gives an example:

C XYZTST, DUMP, TRYING TO FIX HANG

From this the operator can tell that the job called XYZTST was cancelled in an attempt to clear a system hang.

If there's going to be a mess on the line Analysis II will spot it

The picture above shows that lines of communication are not always trouble-free. Data travelling along telephone lines is just as likely to run into difficulty.

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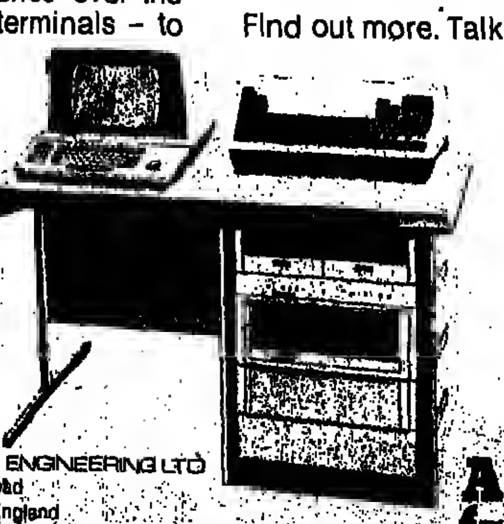

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NCC seminar

WP user group to stimulate training

A NEW word processing user group is to try to stimulate increased education and training in the operational and management skills needed to exploit computer-based office information systems.

There is currently an acute shortage of word processing operators, and the public and private educational community is failing to meet the growing demand, according to Hugh Channon of Arthur Andersen & Co, chairman of the uaer group, the UK branch of the US-based International Word Processing Association.

The president of the IWP, Erv Stedman, who was in London last week to inaugurate the first IWP bronch outside North America, said that there was also a shortage of word processing staff in the US, but over 25% of further education colleges offered certificates in word processing and about 25% of secretarial courses up to high school level offered introductions to the concepts of the new technology.

Many of these courses had come about through the active participation of IWP members in "citizen advisory councils" which exist in some areas of the US to liaise between industry and the educational system.

Stedman claimed that word processing had also opened up new career opportunities in management and supervisory functions for secretarial and clerical staff.

The UK branch is the 54th in the IWP, which has approaching 7,000 members in the US and Canada and which expects to open an Australian branch soon.

Hugh Chapman said that there was an urgent need for users in the UK to have a body which represents their needa, provides an exchange of experience between those implementing and planning to implement word processing equipment and provides a link between users and suppliers of systems and services.

By becoming a branch of the IWP, Chapman said that the new group could immediately draw on the wide range of facilities offered by its parent body, which haa baen in existence since 1973, first as a group of the US Administrative Management Society and since 1977 as an independent, non-profit making organisation.

USERS of ICL equipment throughout the world want to establish direct links with the company so that their needs can be dealt with more quickly. This was one of the points that came out of the first full meeting of the International Federation of ICL Computer Users Associations, held in Jersey.

The delegates felt that working through local ICL representatives resulted in slow and unreliable communication with the company in the UK. Next month the federation hopes to have a special meeting, most likely in Paris, when Les Cole, ICL's director of worldwide marketing, will meet the delegates to discuss the development of company communication.

At the Jersey meeting it was decided to hold a full conference at least once a year.

The federation was set up in 1977 by a group of overseas users who visited the UK CUA conference at Scarborough. Last year at Eastbourne, the federation held a half-day meeting at the end of the UK conference.

The next full conference of the federation will be in May next year, although European members are thinking of having an intermediate conference this autumn.

UK representatives at the Jersey conference included Howard Wrigley, former chairman of the UK CUA, who is president of the federation, and the CUA chairman and vice-chairman, Jim Rothwell and Stuart Goold.

US users were represented by Frank Miles, a System Ten user, who is vice-president of Forum International, the group that covers users of Singer, TRW and ICL kit in the US.

● Or picture shows a line-up of the delegates at the Jersey meeting.

Decision on services to US

GRAPHNET and Telenet in the US are to be authorised by the Federal Communications Commission in Washington to offer facsimile and data transmission aervices respectively to Europe.

Authorisation was given in 1977 for a service in the outbound direction only, but permission for the inbound direction was withheld because Western Union International objected to its monopoly of international telegraphy being broken. The FCC ruled that the introduction of competition to domestic telegraphy had removed it, but WUI disagreed.

Objections from the other international record carriers, ITT and RCA, were removed when they went into partnership with Graphnet and Telenet. The latest decision on the case has come from the US Court of Appeals for the District of Columbia which has granted the new services a stay pending litigation.

IBM opens French boutique

HOT on the heels of its Rotterdam retail centre (CW, May 3), IBM's General Systems Division has opened a GSD shop in Charbonnières, near Lyons, in France.

Chicly styled the IBM Boutique, the store is the first of three planned for France this year; the others will be in Paris and Lille, and a total of 21 are planned for Europe this year. Main product to be promoted is the IBM 5110 desk-top computer, and the customers aimed at are small and medium-alzed companies. The storea will take orders for the machines rather than sell them over the counter.

IBM Japan finds way to boost profits

THE higher profits achieved by IBM Japan during 1978 are attributed to the use of parts and components manufactured in that country.

In the 12 months up to lost December the company reports sales worth Yen 315,343 million (about £700 million) showing pre-tax profits of Yen 69,858 million (about £150 million). This represents a 7.3% increase in sales and a 24.3% jump in profits.

New investment during the year waa down 28.5% at Yen 44,548 million (£99 million).

The company has a payroll of Yen 83,575 million (£185 million) for 12,041 employees which gives an average annual salary of £15,373. This includes bonuses and welfare expenses.

FINANCIAL NEWS ROUND-UP

AMDAHL sales for the quarter ended on March 30, were $87.5 million producing a pre-tax profit of $24.5 million. Figures for the same period in 1978 were $63.7 million and $19.1 million respectively. The selling pricea for the company's computer systems were reduced by about 20% during these two years.

HONEYWELL aales for the first quarter of 1979 were $966.8 million compared with $788.8 million in the first quarter of 1978. Profits after tax for these perioda were $59.6 million and $35.4 million respectively.

NATIONAL CSS aales for the 13 weeks ending February 28 were $23.2 million compared with $13 million for tha same period in 1978. Profit before tox increased from $2.04 million to $2.38 million for these comparable 13-week periods.

DATA GENERAL sales for the 12-week period ending March 17 were $112.4 million compared with $81.6 million for the same period in 1978. Profits after tax for these periods were $12.2 million and $8.5 million respectively.

PRIME COMPUTER sales for the 13 weeks ending April 1 were $29.5 million compared with $18.1 million for the corresponding period in 1978. Profits after tax for these comparable quarters were $2.9 million and $1.6 million respectively.

BURROUGHS reports, for the first quarter of 1979, sales of $588 million compared with $505 million for the same period in 1978. Analysis of these perioda' sales shows an increaae in rental and service revenue of 15%, ond 18% increase in sales of products and systems. Aggregate profits after tax were $42.2 million for the first quarter in 1979 and $33.5 million for the comparable period in 1978.

STORAGE TECHNOLOGY reports sales of $69.9 million for the 13 weeks up to March 30, with pre-tax profits of $13.24 million. For the same period in 1978 sales were $37.3 million earning pre-tax profits of $6.57 million.

DATUM INC reports sales for the 13 weeks ended March 31 of $3.6 million. This was below the comparable figure for 1978 of $4.1 million. Profit before tax dropped from $341,000 to $86,000 for these comparoble periods. The reasons given for the fall in sales and profits were increases in development expenditure and new product development.

Beginners in micros

IF you know little about microcomputers and are doing nothing on Saturday, May 12, the specialist magazine *Personal Computer World* may provide salvation. On that day it is holding a beginners' seminar at the West Centre Hotel, Lillie Road, London SW6.

For a fee of £12 per head, the magazine will be presenting author *Rodney Zaks*, who will cover such topics as hardware, software, business computing, and selecting a system. To complement the event, there will also be a "miniature" exhibition.

Texas adds to 700 series

ADOPTING its own TMS 9900 16-bit microprocessor, Texas Instruments has introduced a highly intelligent terminal into its 700 series. Called the TI 771, it went on show in Europe for the first time at Hanover Fair.

It comes with 64K-bytes of main memory, and is offered with a dual floppy disc drive, each with a capacity of 256K-bytes.

Other optional attachments are a 30 cps thermal printer and a 150 cps matrix printer, and Texas believes the product will be attractive as the basis of a stand-alone word processor as well as a traditional terminal.

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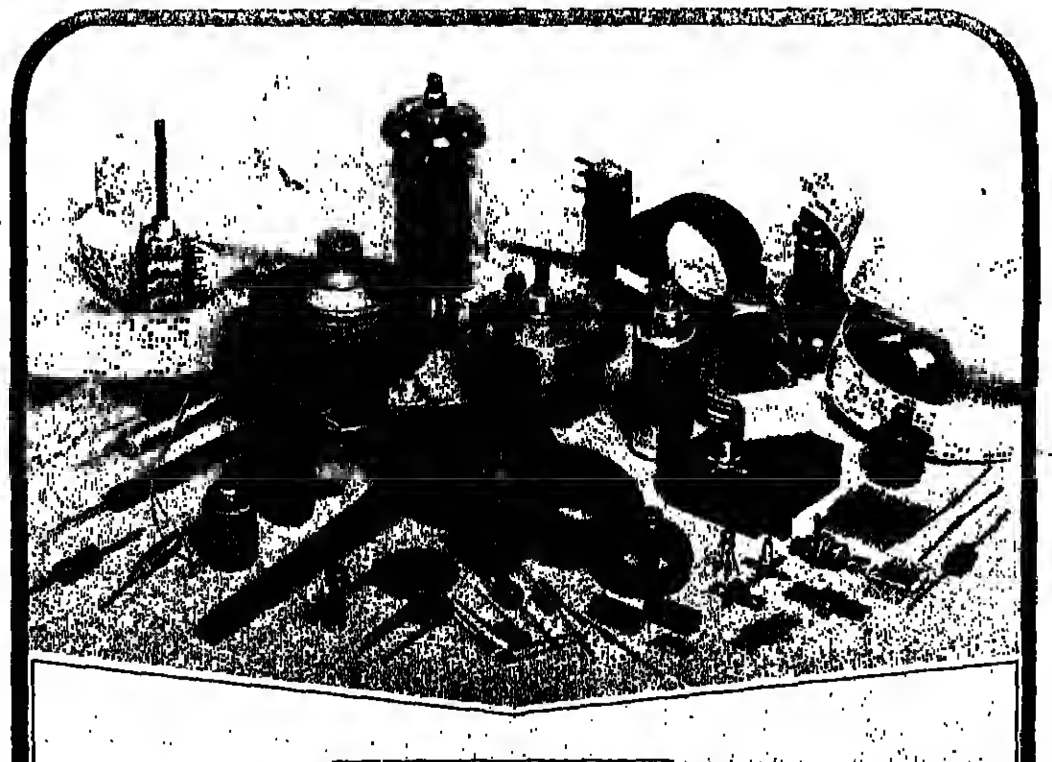

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PEOPLE AND EVENTS

By Judith Morris

Professor on IBM board

PRINCIPAL of the London Business School, Professor James Ball, has been appointed a director of IBM UK Holdings and IBM UK. He has been at the school since 1965 when he became professor of economics.

As well as his academic work, Prof Ball is currently director of Tube Investments, Barclays Bank Trust, and the Legal and General Assurance Society. He is a governor of the National Institute of Economic and Social Research, a fellow of the British Institute of Management and was chairman of the Committee on Policy Optimisation.

Ball Neale McKenzie Cuzner

Tony Neale has joined the Data Communications Division of Harris Systems as a sales representative, responsible for the company's 8000/1600 range of computer terminals. He was formerly a salesman with Computer Ancillaries.

Ron McKenzie has joined Compeda as a systems programmer on Gaelic, their package for designing integrated circuits. He was previously with Cambridge Consultants, where he worked on projects using the Intel 8080 and PDP-11.

Fellowship for Cuzner

AN IBM fellowship has been awarded to David E. Cuzner, director of IBM UK's development laboratory at Hursley. The fellowship, first made in 1963, goes to IBM scientists, programmers and engineers who have an outstanding record of technical achievement.

Cuzner was the second UK employee to receive the award, for his contribution in the development of low-cost files. He is co-inventor of the swinging arm actuator which has increased the reliability of small disc files.

Shops, Smedley-HP Order Processing System, has won the Imperial group competition for the system which uses computers most beneficially. The competition was launched last year by Malcolm Anson, deputy chairman of the group, and he judged the entries together with David Fimberg of the NCC and Jim McKinnin, finance director.

The winning system ensures that all the day's orders from over 100 salesmen and managers are received and processed on the same day. This is done by each salesman having a portable data entry terminal linked to an audio response minicomputer, which in turn is linked to an ICL mainframe.

Colin Powell (right), management services manager of Smedley-HP, is pictured being presented with a specially commissioned trophy at a celebration party at Imperial House, London. Presenting the prize is Malcolm Anson, who congratulated the team on their "enthusiasm and initiative."

Expansion of MAI UK

MAI United Kingdom, the subsidiary of the US computer manufacturer Management Assistance, has announced two new appointments [illegible] the move to new and larger premises. Tony Armstrong joins MAI as general sales manager, responsible for sales of Basic Four products, and Bill Escott has become software support manager. Armstrong was formerly a salesman with Midland Business Machines, and Escott was a consultant with Touche Ross. The company's new address is at Elstree Arrow House, Chandos Road, London NW10. Tel. 01-965 9731.

Anthony Costanzo has been appointed director of marketing for Rockwell International's Collins Communications switching systems division. He formerly worked for American Telephone and Telegraph company, where his most recent position was that of manager for product and business planning for industrial switched networks.

Richard Puk has joined Megadata Corp as director of software development. Prior to joining Megadata, Puk was with Sandia Corp in Albuquerque, where he developed and introduced an integrated package for the company's computer graphics facilities.

Dean Webster has joined Arbat UK as a systems consultant. Before taking this post he was with Redifon, where he was systems support manager in the company's financial branch. At Arbat he will be involved in their banking communications and message switching system.

DIARY

MAY 14

Prestel and its social implications. W Morley. IEE, Savoy Place, London WC2 18.00.

MAY 15

What is a project manager? — seminar. Association of Project Managers, Waldorf Hotel, London WC2. 10.00. Details APM, 01-789 3182.

Design and optimisation of job scheduling strategies. L Mitrani. Denotational semantics and program improvers. M. Harrison. BCS specialist group. Polytechnic of Central London, Regent Street, London W1. 14.00.

Data processing in the Boeing company. IDPM, West London to Oxford branch. Bull Hotel, Gerrards Cross, Bucks. 20.00.

AGM/The Role of Large Computers in the 1980s. Prof F. H. Sumner. BCS Croydon branch. Fairfield Halls, Croydon. 18.15.

MAY 15-18

Fourth European Congress on Information Systems and Networks. Commission of the European Communities. New Theatre, Luxembourg.

MAY 16

Computer aided software engineering. BCS CAD specialist group. Polytechnic of the South Bank, London. 14.00.

Serving the industry. R. Bulgen, P. Merrick. IDPM Central London branch. Pearl and Dean studio, Broadwick House, Broadwick Street, London W1. 18.00.

AGM. BCS specialist group for the disabled. Olivetti Room, BCS HQ. 13 Mansfield Street, London W1. 18.30.

A consumer's guide to word processors. ICFC. Cafe Royal, London W1. 0930.

The impact of DLP regulations. BCS information retrieval specialist group. Social Sciences building, Nottingham University, Nottingham. 14.00.

MAY 17

Role of large computers in the [illegible]. Prof Frank Sumner. BCS London branch. Waldorf Hotel, London WC2 18.00.

AGM and social evening. J. Wood. BCS Guildford branch. Clavadel Hotel, Guildford. 18.30.

Error estimation in pattern recognition. Dr J. Kittler. Image Analysis group, Oxford university. Nuclear Physics Lecture theatre, Keble Road, Oxford. 16.30.

AGM. BCS Coventry branch. Venue to be announced. 18.30.

MAY 17-18

IBM CUA Local authorities group. County Hall, Durham. 14.00.

MAY 18

Microprocessors — the implications for general management. Southern operational research group, Henley. Administrative Staff College, Henley. Details from Maureen George, on 049 186 454.

AGM followed by guest speaker and buffet. BCS Hampshire branch. The Potters Heron Motel, Ampfield. 19.00.

MAY 22

Microprocessor fair/AGM. BCS Reading branch. Park House, Whiteknights Park, Reading. 20.00.

AGM/Presidential visit. Prof Frank Sumner. BCS S Wales branch. Cardiff. 18.30.

MAY 23

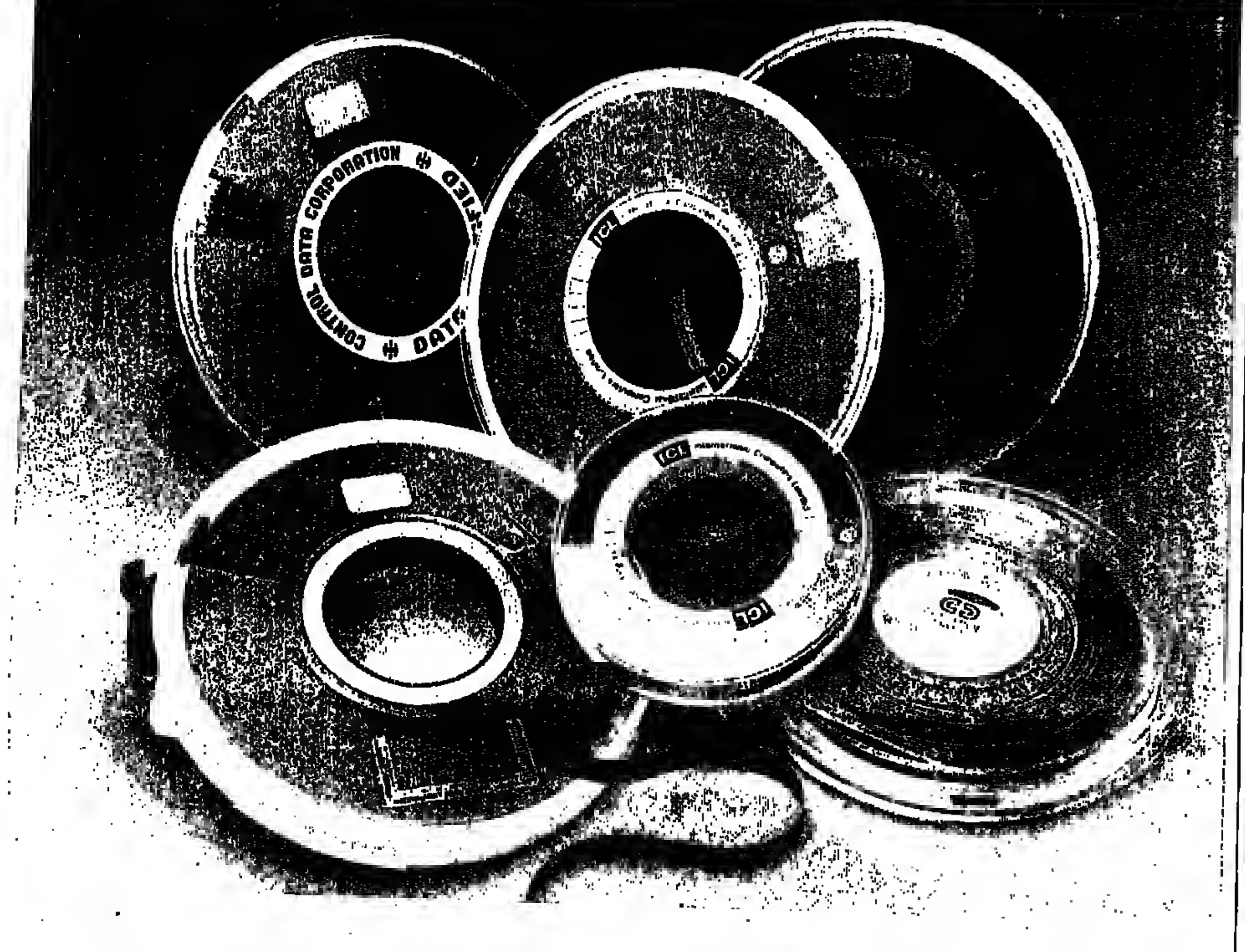
The impact of micros on DP management. conference and exhibition. E House. J. Rogers. IDPM. Bloomsbury Centre Hotel. London. 11.15.

MAY 24

AGM/talk by Prof F. Sumner, BCS President. BCS Leeds branch. Parkway Hotel, Leeds. 6.30.

MAY 24-25

IBM CUA programming group. Centre Hotel, Portsmouth. 14.00.



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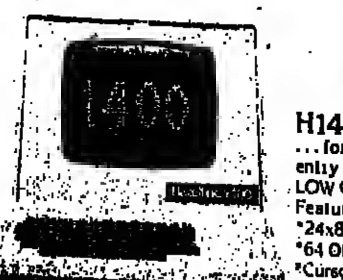

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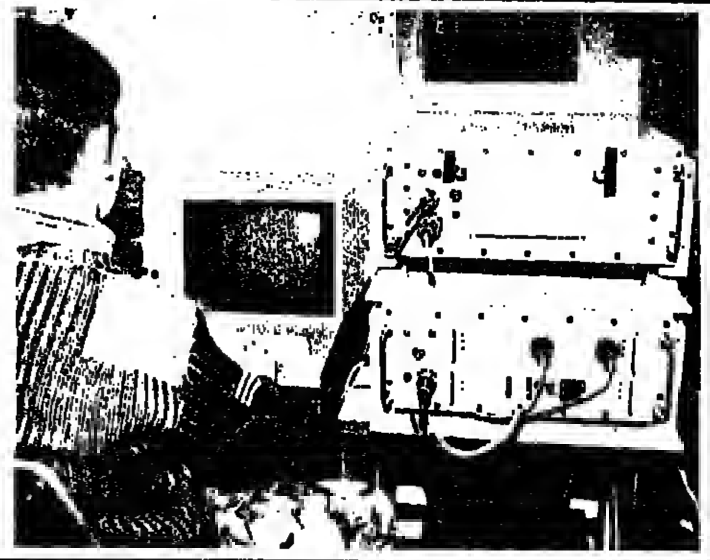
Effective and robust communications net

SHOWN installed in a Royal Signals communications vehicle, this microprocessor-based terminal equipment constitutes one node of a management information system designed to help improve the effectiveness of tactical trunk communications networks.

The system, Bruin MIB, was developed for the Ministry of Defence by Systems Designers and is specifically intended for use with the Bruin secure radio network operated by the British Army in Germany.

The system addresses the problem of reducing the volume of communications management and engineering traffic on the network, and uses existing telegraph channels. More communication capacity is thereby released to operational staff, particularly at peak demand times.

The hardware, which includes an electronically shielded Newbury Labs VDU, is particularly robust, conforming to strict MoD physical, electronic, and maintenance requirements. It is now being manufactured at the Farnborough factory of Systems Designers' associate company, Systems Production.



Two-terminal version of Consort system

DIGICO has introduced a two-terminal version of its low cost Consort system for first time users. Called the Consort 30, a typical configuration would include a 96K byte main memory, two floppy disc drives, a 60 chps matrix printer and two VDUs for £10,500.

On the software side Consort 30 features include a software version of the hardware paging unit on the MTS/18E, Digico's most powerful 16-bit minicomputer. Like the smaller Consorts the Model 30 comes with a Basic compiler.

The Consort processor has many of the standard features of the more powerful Digico machines, including multi-level interrupt, direct memory access and a real time clock. It can be field upgraded.

The smaller Consort configurations, the Models 10 and 20, were introduced early last year (CW, February 23, 1978). The Model 20 differs from the new Model 30 in having only one VDU and 48K bytes of main memory, while the Model 10 comes with just one floppy disc drive, a 16K memory and a teletype instead of a VDU and printer.

Abacus 'stunt box' based on Intel micro

A UNIVERSAL bi-directional interface for connecting any protocol system to any other protocol system in computer-based hardware has been produced by Abacus Computers.

Colloquially known as a "stunt box", it can be used to connect "anything to anything", according to Abacus managing director, Derek Rowe.

Based on the Intel 8085 miniprocessor, the system uses programmable read-only memories to store the relevant information. It is also equipped with sufficient random-access memory to act as a buffer memory, storing up to 240 bytes of data. Read-only and random memory are expandable up to 12K bytes and 16K bytes respectively, so that in some control applications, the interface can also be used by itself as the control computer system.

A range of standard PROMs will be available for the common interface requirements, such as SDLC, HDLC, IEEE488 and RS232. With these, the system will cost around £250. For special requirements, Abacus will produce specific firmware, and the cost could be as much as £500.

One of its advantages, according to Rowe, is that such essentials as baud rates can be changed dynamically under software control, while the system is running.

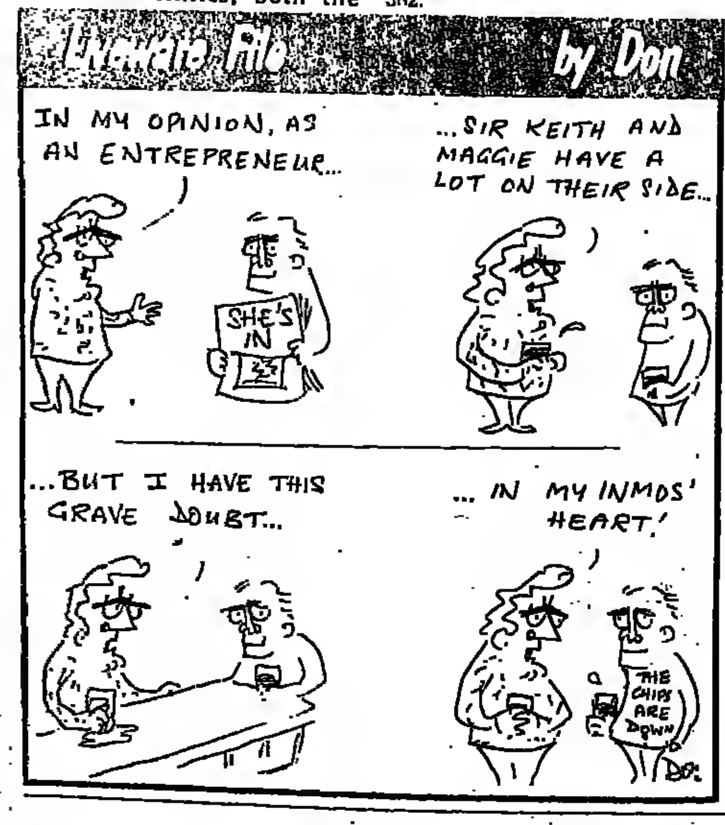
Micro club moves

SELMIC, the South-East London Microcomputer Club, has moved its meetings to Thames Polytechnic in Woolwich. Its first meeting there was held last week, when several specialist groups were set up including groups for Nascom users, novices, business users and communications.

Club chairman John Williamson said the move had been made because of Thames Polytechnic's much more co-operative attitude to the provision of facilities, both the number of rooms available for meetings and support for projects such as outside consultancy activities.

The club's next meeting will be combined with the Grace Hopper lecture on developments in micros, which will be given by Alex d'Agopeyeff of CAP-CPP today, May 10, at Thames Polytechnic main building, Wellington Street, Woolwich, from 4 pm.

Details of the club from John Williamson on 01-858 3291, ext 582.



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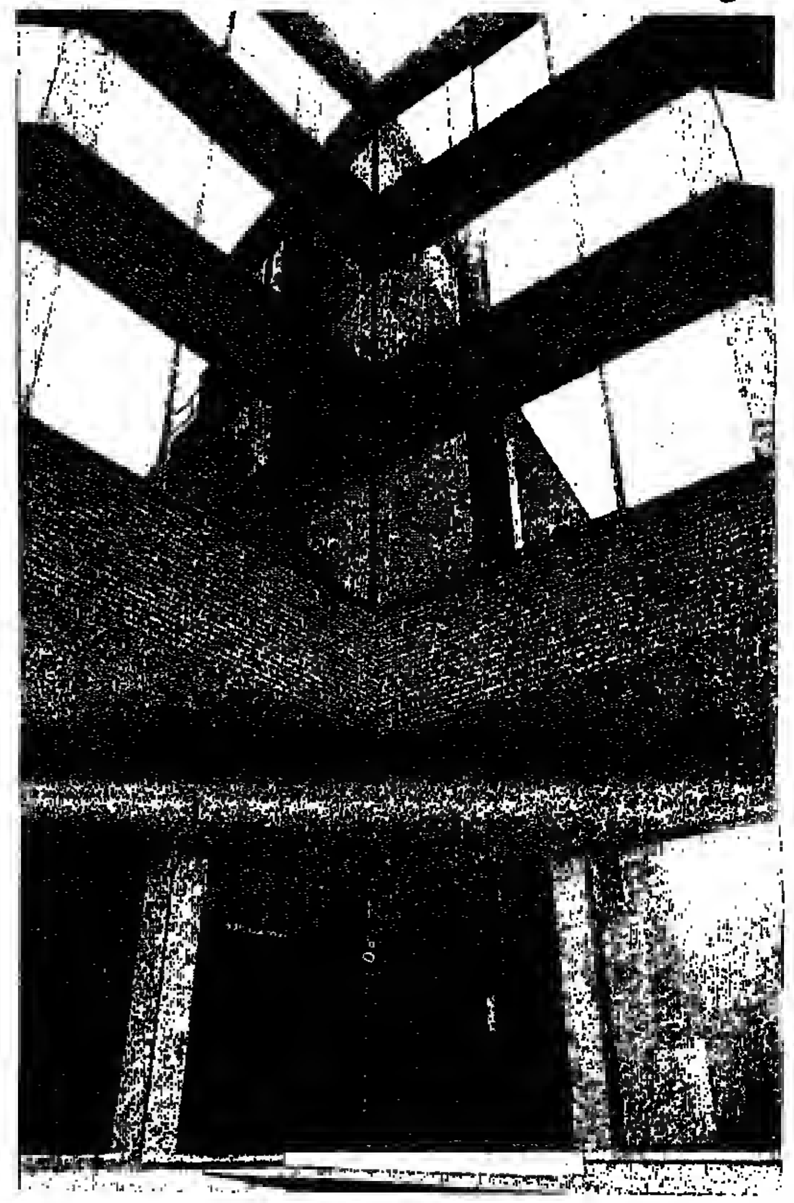

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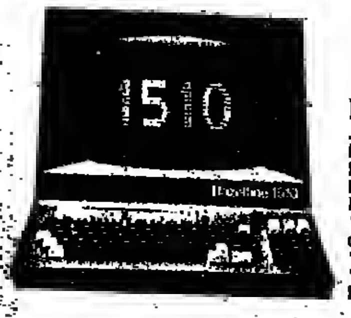

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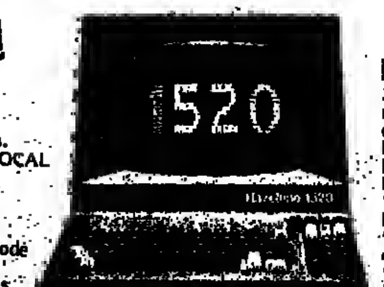

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MICRO NEWS

By Martin Banks

Rapid expansion is under way at the Rockwell International microelectronics division, and imminent announcements include one or more partnerships with European companies. TIM PALMER reports.

Rockwell moves into SOS and bubble memories

HAVING mastered P-MOS and N-MOS technology, the microelectronica divialon ol Rockwell Intarnational is now moving into Silicon-on-Sapphire, SOS, and expects to launch its first product, a low-power very high-speed 16-bit multiplier, later thia year. This will be followed by a 16-bit microproccessor late nazt year (CW, Moy 3).

So says Malcolm Northrup, who heada the division, and has been touring Europe on a wide-ranging mission which includes assessing the market for board-level modem assemblies and weighing up the attractions of Europe against Mexico and the Far East for a naw microelectronics plant.

The othcr major string to Rockwell's 'bow is bubble memories; the company haa been sampling ita 256K-bit devica for some time, and a dozen European companies are currently evaluating it.

"We will be sampling our one-Megabit bubble in tha fall," saya Northrup. "We believe the next step will be four-Megabit devices, but for these we will need to go to the new technologies announced by IBM and Bell Laboratories. We are working along the same lines as they are, but we do not deny that thay have a lead."

Bell Laboratorias haa announced a way of elliminating the electric current coils normally required to generata the magnetic field around the active material, replacing them with a deposit of gold (Micro Newa, April 12), and IBM haa announced a way of encoding tha domain walls of tha bubbles to achieve a fourfold improvemant in packing density (Micro Newa, April 26).

Northrup seas bubble memory aa a natural replacament for fixed head disc storage, and mentions Electronic Cash Registers, ECRs, aa the typa of product where they might supplant tha floppy disc.

"If you have 1200 ECRs in tha field, the maintenance problems posed by a floppy driva on aach terminal are enormous, and would justify the extra cost of bubble memories," he comments.

Interestingly, he sees tha EEC market as a prima one for bubble memorisa, noting that while present EEC business accounts for 15% of the division's total, EEC sales of Rockwell's bubble memories could account for 30% of the total on this product.

The biggest single success so far from the Rockwell atable is tha four-bit PPS-4/1 micro, which is an enormous aaller in the games market.

"The electronic gamea market is growing at between 30% and 40% a year, and is limited by both the number of chipa wa can ahip and the availability of displaya."

Rockwell's aight-bit chip is the PPS-8, and neither haa baen particularly dominant in tha data processing market, although Hindustan Computers in New Delhi haa adopted the PPS-8 for a busincaa systam and a data entry syatem, and the PPS-4 for a programmable calculator (CW, June 8, 1978).

Rockwell ia alao a second source for the MOS Technology 6502, and the company'a entry into the 16-bit market, due shortly, is expected to offer subatantiol aoftware compatibility with this device (CW, November 30, 1978).

Rockwell Microelectronica at present doea 8% of ita business with other Rockwell companies, mainly in the defence field, and Northrup anticipates that chips as big as one centimetre square will be needed to handle the ultra-faat signal processing requirements of forthcoming defence applications. It ia in part for this market that Rockwell ia mastering SOS technology. Northrup aees buainesa with other Rockwell companies growing to 20% within five years.

Visiting firemen invariably face a barrage of questions about the practicability of the National Entarprise Board's Inmos microelectronics ventura, and Northrup waa no exception.

"You're talking about that American company in Colorado Springs? I understood that the intention was to aid the UK, and I do not see how aiting the first production facility in the US achieves that and. But Inmos has some excellent people: well-qualified industry leaders.

NORTHRUP . . . "we will be sampling our one-Megabit bubble in the fall".

"The investment in inmos is a significant amount of money, but I doubt whether it isenough to start a major microelectronics company," he warns.

On the link betwesn GEC and Fairchild, he believes that it has more chanca of success, provided that the two companies are attuned to each other and can work together.

On the possibility of sitting Rockwell's foreign plant in the UK, he acknowledges that the country's industrial relations record is the biggest concern, but does not rule the UK out of consideration on those grounds.

Easing the system design process

BUBBLE memory application with the systems designer very much in mind would seem to be the philosophy behind Intel Magnetic's official entry into the market-place. As pradicted, (CW, April 26) the company last week introduced a 1M-bit bubble memory component, together with a set of support circuits specifically aimed at easing the system design process.

The memory is expected by the company to be used initially in micro-based syatams applications requiring between 128K bytes and 2Mbytes of storage. In particular, Intel expects to see it being used in terminals, word procaasing syatoms, telecommunications and process control.

The prime componant in the Intel aet is the 7110 bubble memory. This is a serial-parallel-serial ahift register device with a binary paga organisation. Measuring two square centimetres in area, tha device holds 2,048 pages. Each paga is 512 bits, which is itself divided into 256 bits, or 64 bytes.

In addition to this main storage area, the devica also incorporates error correction codes of up to 32 bits per page. There is also up to 192K bits of in-built redundancy in the memory, so that minor defects during fobrication do not necessarily mean rejection of the device ot the manufacturing stage.

Its performance specification includes a random occess time per pagc of 40 milliseconds, while thc page read and write times require 0.5 milliseconds each.

To sume extant, the important products in the Intel chip set are the interfacing components. Theac arc the 7220 bubble momory controller, the 7242 formattor/sense amplifier, the 7230 current pulse generator, and the 7250 coil predriver.

The formatter/sense amplifier ia probably the key component in tha set after the memory itself. Thia connects the memory device to the memory controllar via a serisl bus, so that memory configurations of up to eight bubble memories (1Mbyta of store), each with its attendont formattor/sense ampliflar, can be run from one controller.

Abacus takeover bid by anonymous US firm

THE move by a US company to taka over Abacus Computers (Micro News, April 5) haa been confirmed by managing director Derek Rowe. An offer "well in excesa of £100,000" has been made for a 25% atake in the company'a equity, plus a capital injection.

This ia now being negotiated with the US company, which Rowe declined to nama. It ia possible that the equity stake could be increased, and that the suitor may also becoma involved in Rowe'a other company, Small Systems Engineering.

The main outcome of the move, according to Rowe, will be a concerted move by the company into the European market. It will also involve the addition of a new, Data General-based computer system to the company's existing distributorships for Texas Electronic Instruments and Commodore color.

This new machine will be a customised version of the Data General Nova, which will be equipped with 32K by 16-bit words of main memory, plus 10 Mbytes of hard disc storage configured as 5 Mbytes fixed and 5 Mbytes removable.

Known aa Dimanaion Data, the system will be coming direct to Abacus from Data General in the US, and will be maintained by Data General in the UK.

Abacus has alsb dropped the distributorahip of Ohio Scientific, which Rowe says does not now fit tha company's market.

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CHESSLAB

By DONALD MICHIE

Heuristics v analysis

IN the following chess miniature, (Moravec, 1927):

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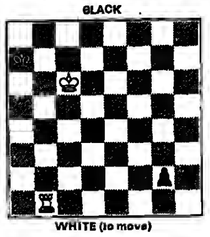

WHITE (to move)

(ringed symbols denote White pieces)

Black has awe-inspiring pawn-promotion threats. Yet White can draw. How?

First consider tha problem as it presents to a machine syatem devoid of understanding, i.e. unequipped with any concepts beyond the bare rules of the game. Such a system must proceed by exhaustive analysis. How much blind search must it do?

Black can spin things out for 14 moves (28-ply). At each step White'a choices average about 20 legal moves and Black's range from one to five — many more in "stupid" branches of the look-ahead in which one or more pawns have queened: in brute-force lookahead such variations must be included. So the total number of variations to be searched is something like $20^{14} \times 5^{14}$, or 10^{28}! Conclusion: in the absence of heuristics, the position defies analysis.

I recently had the instructive experiance of watching the response to this problem of the British program Master, developed at Harwell by Peter Kent and John Birmingham.

When set to search only 5-ply deep, the program soon made a fatal step and was lost. But when re-set to 7-ply it unrolled the solution unerringly. The concepts embedded in its "evaluation function" which it found relevant were the following:

1. Checkmate.
2. Repetition of position.
3. Move kings together in the end game.
4. Positional value of kings is high in the middle of the board, low at the sides and lower still in the corners.
5. Attack and control of squres next to the opponent's king.
6. Checking the king.
7. Opposition of kings.
8. Passed pawns increase in valua as they advance. A passed pawn on tha seventh rank is worth at least a knight if the square in front of it is not attacked or blocked.
9. Threatening, controlling and blocking squares in front of passed pawns.
10. Threatening and controlling squares containing passed pawns.
11. Pawns on the eighth rank are converted to queens and take the material value of a queen.
12. Threats to queens, rooks and pawns and swap-offs on the squares containing these pieces.
13. Distance of kings from the pawns.
14. X-rays and skewers.
15. Kings outside the square of passed pawns.

The following account is based on Peter Kent's comments:

While the above elements all had some part in the ordering of moves, most of the moves were decided by a very small subset together with an algorithm which tells the machine to keep searching until a "reasonable" move is found (if one exists). "Reasonable" is defined by numerical limits which it decides for itself and is based on the value at the base of the tree and the backed-up score.

In this example every move was dominated by the need to prevent the pawns queening. When there were several alternatives for the given depth of look-ahead it selected moves that forced repetition or kept the opponent's king away from the centre of the board and the two kings close together.

Elements 1, 2, 3, 6 plus materiol value including 4 and 11 ore probably sufficient to solve the problem.

A tree searcher is much more robust than a knowladge-based program but is less precise. It will often find the correct move even if the knowledge it does have tella it to search in the wrong area initially. White's 19th move in Master's solution to the above problem is a good example.

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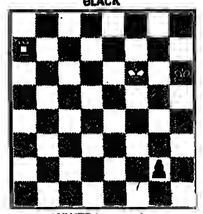


WHITE (to move)

White's correct move is R-R8, but this is against most of Master's evaluation terms. It leaves the squares in front of the passed pawns uncontrolled. It does not threaten the passed pawns. It removes control from a square next to the opponent's king. Even worse — in the lookahead it finds that it forces the opponent's king to run away from the corner and towards its pawns. Of the 22 possible moves only two have a lower score, and yet Master found the correct move because it was the only possible move. The cost of this bad advice, however, was an increase in the number of positions examined from an average of about 15,000 to 125,000.

The 28-ply calculation used earlier was based on a much shorter solution than the one found by Master (and given by the study's composer Moravec). Can the reader find it?

CONFERENCES

A ONE DAY seminar on the distribution and handling of documents in large organisations will be held at the new Kensington Town Hall, on June 8. The event is organised by Fraser-Nash (Mechanisation). The seminar will include a short film to introduce Transcar, a microprocessor controlled robot delivery system which will be available in Britain later this year. Details from A. Wilson, Fraser-Nash (Mechanisation), Burgoine House, Lower Teddington Road, Hampton Wick, Kingston upon Thames, Surrey. Tel: 01-977 1051.

THE evolution and future impact of telelnformatics will be discussed at Telelnformatics '79, to be held in Paris at Unesco from June 11-13, together with an associated exhibition. Organised by AFTEC, the conference was proposed by Ifip Technical Committee 6 and is sponsored by Unesco, the CEC and ICCC. Further information and programme from AFTEC, 156 Bld Pereire F 75017 Paris.

MATERIALS requirement planning is the theme of a one day seminar, to be presented by Hal Mather and Organised by the Yorkshire and Humberside branch of the British Production and Inventory Control Society. The seminar, which is open to non members, will be held in Leeds on June 11. Details from the administration of the APICS on 0279 81 2798.

BEE, the West of England Electronics Show, which will present electronic equipment components and services, will take place at the Bristol Exhibition Centre, from September 11-13. Organised by Exhibitions for Industry, the exhibition will be supported by extensive promotional campaign. For details tel: 06833 4731.

BELLEVUE, Manchester, will be the venue for the Office '78 conference and exhibition, from June 11-14. The conference will provide a programme of papers from some leading experts in industry, with emphasis on office management and buying techniques. It is organised by Magnum Exhibitions, 157 Station Road East, Oxted, Surrey. Tel: 06833 4731.

EDWARD DE BONO will be giving a three-day tutorial, organised by Infotech, from May 23-25. It is called Lateral Thinking, a special tutorial for OP personel, and will be held at the Lords Conference and Banqueting Centre, London. For details contact Colin Steed on 0628 35031.

COMMUNICATIONS and computers in the office of the future is the title of an ICCC tutorial, organised by Aftec. The seminar will discuss future impacts of evolving hardware and software on office systems and the impact of the office of the future on individuals. The tutorial will be held at the Hotel Hilton, Paris, from June 8-8. Details from AFTEC, 156 boulevard Pereire, P.O.B. 571, F-75826 Paris.

THE challenge of compatibles is the subject of a conference organised by BIS Applied Systems. Suppliers and users of plug compatibles will be speaking at the one-day seminar, which will take place at the Cafe Royal, London, on June 14. Details from Jackie Collings at BIS Applied Systems, York House, 199 Westminster Bridge Road, London SE1. Tel: 01-633 0866.

THE small business computer market in the US, and information for European users and manufacturers, will be discussed at a Frost and Sullivan two-day conference, to be held at the Holiday Inn, Swiss Cottage, London, from May 30-31. For further details contact Chloe Haslam, 104-112 Marylebone Lane, London W1. Tel: 01-486 8377.

THE risks that computer users face will be examined at a one-day conference on computer security. The Certified Accountants Educational Trust is organising the event, which aims to inspect methods of risk management and available security options. It will take place on June 28, at the Royal Horseguards Hotel, Whitehall Court, London. For details tel 01-880 7179.

PAPERS are invited for presentation at a conference to be held at the City university, London, on November 8-8. The main theme will be the use of computers in the quality control of data from social surveys, but papers on other aspects of computerised survey analysis will be welcome. A synopsis of not less than 1,000 words should be submitted before June 30 to Beverley Rowe, World Fertility Survey, International Statistical Institute, 35-37 Grosvenor Gardens, London SW1.

AN international conference organised jointly by the BCS and ACM, on the subject of research development in information retrieval, will be held from June 23-27 at St John's College, Cambridge. Papers are requested for presentation at the symposium, and contributors must submit a 2-page synopsis of their paper by September 14, 1979.

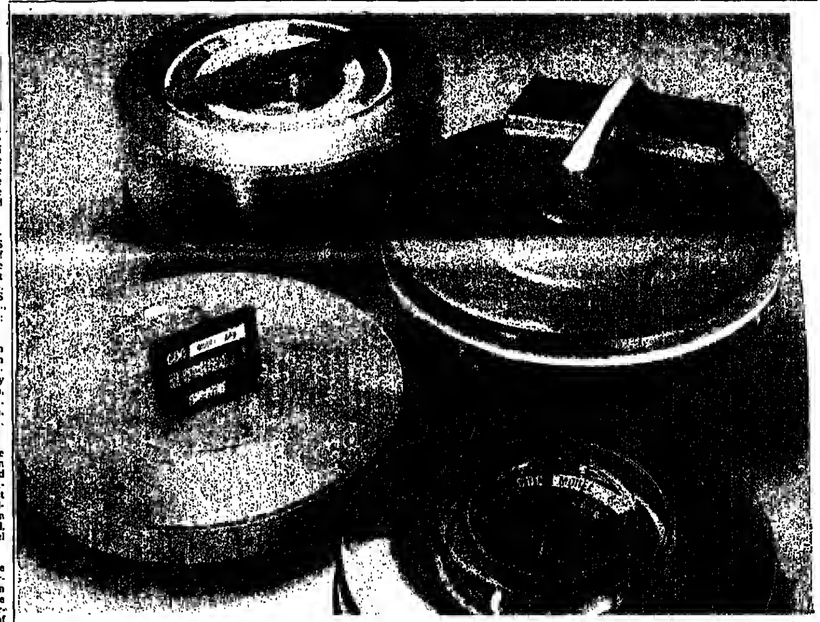
COURSES

SHEFFIELD CITY POLYTECHNIC is organising a course on distributed databases, to be held at the Polytechnic from July 9-20. It is sponsored by Crest, the Commission of European Communities and the Science Research Council. Scholarships for the cost of the course will be awarded by Crest and SRC. Details from I. W. Oraffen, Head of Department of Computer Studies, Sheffield City Polytechnic, Pond Street, Sheffield. Tel: 07422 0911, ext 384.

STRUCTURED systems design and personel development and appraisal are the themes of two courses offered by BIS Applied Systems, both beginning for the first time in June. To be held respectively on June 13-15 and June 18-20, the courses will take place at the Coburg Hotel, London. Details from Jackie Collings, BIS Applied Systems, York House, 199 Westminster Bridge Road, London SE1. Tel: 01-633 0866.

ENGINEERS from all disciplines, who wish to understand microprocessors in engineering, can now attend a short course specially designed for them. No previous knowledge of digital techniques is required. The course is organised by the Inter-University Institute of Engineering Control, and will be held at Warwick University on July 11-13. For further information contact Dr P. K. Blake, the Course Organiser, Microprocessors in Engineering, Dept of Engineering, Warwick University, Coventry. Tel: 0203-24011.

CIRCUIT analysis by computer is the title of an intensive four-day course given by the Department of Electrical Engineering at Imperial College, London. It is designed for electronic engineers who have not had the opportunity to become familiar with the use of computers. The course will be held from May 22-25. For details tel: Joan Jeffery on 01-589 5111, ext 1470.



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enables documents on the host to be viewed instantly rather than after they have been transferred to the 3730 disc; an input format for the Stairs information retrieval system, £82.15, and use of the host printer for document output, £54.75.

Users will also need a DOSS package on each communicating 3730, costing £41.10, and the direct viewing facility also requires software on the 3730 costing £13.70.

House of Fraser switches to Swindon

RETAIL group House of Fraser has wound down Knightsbridge Computer Services, its division based at Acton in West London that handled most of its data processing workload, and has moved the whole operation to Swindon where it has just opened a purpose-built computer centre.

Called the Fraser Centre, the new Swindon installation houses two ICL 2960 systems, and these have taken over all the work formerly handled by two ICL machines, a 4/50 and a 4/72, at Acton.

The two 2960s come with one and two Megabytes of main memory and both emulate the System 4 environment under DME/4 at the moment, although the plan is to run the two-Megabyte machine under VME/B as soon as enough of the System 4 workload has been converted.

Before the Fraser Centre was completed, the one-Megabyte 2960 was already running at the nearby W. H. Smith computer centre, where it was installed in April 1978 on a temporary basis for training House of Fraser staff and for developing and sizing DME/4 work (CW, April 6, 1978).

Under its agreement with House of Fraser, W. H. Smith was able to offer System 4 and 1900 DME services on the 2960 on a bureau basis.

ICL West Gorton to be rebuilt

ICL has announced that it is going ahead with the rebuilding of its research and development centre at West Gorton, Manchester.

The old factory buildings at West Gorton will be demolished and replaced by a complex of offices, workshops and laboratories incorporating the existing tower block which was built only ten years ago. It currently houses most of the 1,400 development staff based at West Gorton.

From now on, West Gorton will be devoted to R and D. Large systems assembly is being transferred from there to a new site at Ashton-under-Lyne and PC board manufacturing to a new plant at Upper Brook Street, Manchester, not far from the West Gorton site.

Building at the two new locations started last year (CW, May 4, 1978) and is scheduled for completion shortly, according to ICL. Ashton-under-Lyne will employ more than 1,000 staff and Upper Brook Street will have nearly 500.

Chinese journal

A CONTROLLED circulation computer monthly for distribution in the Peoples Republic of China has been launched. It is being written and printed in Hong Kong, comes from Computer Publications Ltd and is called China Computer Monthly.

COGARVIEW

Billions wasted by lack of planning

THERE are well over 11,000 government-owned computers in the US; probably no one individual, office or even databank knows quite how many. Each one contributes in some measure to the executive's attempts at economic and social planning.

Yet the computers themselves operate in a totally haphazard environment in which lack of planning has wasted billions of dollars of the very economy which the computers are supposed to be . . . and so on.

This assertion comes not from me, but from an even more impeccable source: the government itself. Its Comptroller General came out this summer with a report which fairly sizzled over the inadequacy of the government's computing methodology.

Because government agencies had failed to come up with any standards to compare with, say, the standards adopted by the banks in the 1950s to improve cheque processing, incompatible systems abounded, leading inevitably to duplication of work and resources. And because agencies wanted to avoid the labour of software conversion, they were virtually locked into single suppliers, losing all the potential advantages of competitive tendering when it came to equipment replacement.

The Comptroller General's report provides plenty of ammunition for the economic hawks in the US, implacably opposed to all forms of central planning and government regulation of business. "If the government cannot even control its own computer systems," they will be saying no doubt, "how can it possibly control the far more complex macro-systems of the economy or the environment?"

But the argument against planning in general seems to be derived from an unfair reliance on particular examples of planning failure. I cannot accept that attempts to set notional priorities and programmes aimed at their achievement are necessarily unproductive. The problem is that the resources applied to these attempts are rarely sufficient to guarantee success.

In the West the deficiency, as exemplified by the Comptroller General's report, tends to be methodological. Some would say that is because people brought up in a free market environment (well, more or less free) are basically ill-adjusted to the concept of national planning and therefore do it badly. To be sure, we have the hardware, but so far we don't seem to have deployed the hardware in an efficient manner.

But there are exceptions. The US national census is an enormously successful instance of applied methodology. It's incredibly detailed. I can go into the census bureau, buy the demographic profile of New York City, and instantly I know how many Latvians there are in the city, first or second generation, whether they live in homes with bathrooms, and so forth.

If Big Brother is not yet exactly watching Americans, he is certainly counting them with considerable effectiveness.

The US national census is, of course, heavily computerised — it could not conceivably be undertaken otherwise. Its analyses form an unparalleled database for long-term socio-economic planning, if we but knew what to do with this great mass of raw information.

The US census, in fact, is not at all dissimilar from those undertaken by East European countries, where a comparable level of hardware and software investment has been poured into amassing demographic statistics — whence all good planning flows.

A small country like Hungary, for instance, just now planning its second computerised census, stores the data on 15 200-Mbyte disc units, uses Honeywell's Integrated Data Store (IDS) software for processing, and will employ something like 80,000 inspectors checking the quality of the data collected.

Talking of methodology, it is interesting to note that the demands of the Hungarian national census have led to a new Rjed standard for expressing the language's nine accented vowels. Up till now, only four of the accented vowels have been included in the usual sign stock of Hungarian computers; this was adequate for normal transactions, any ambiguities being resolved by context. But it would not do for the census, since many Hungarian surnames are only distinguishable by accurate rendering of their accented vowels.

The Soviet Union is probably the most conspicuous example of the planned economy, and economists delight in pointing out its shortcomings, often comparing its attempted hierarchical layering to that of a haystack. But the dedicated scientists at Gosplan have to contend with inadequate hardware and whimsical political decisions. How could anyone plan the economy of a country as complex as the USSR on a couple of obsolete ICL System 4/70s and a pair of Elliotts which ought to be in a museum?

As for political whimsy, what better illustration than the level of car ownership in Georgia, favoured in regard to consumer durables since Stalin's day. The Georgian motorists have precious few roads to drive on, since prestige demands that new roads be built in and around Moscow. Even the planned economy has its irreconcilable political priorities.

In fact, of course, all Western economies are far more centrally planned than many people realise. The US government has an enormous influence on R&D, for instance, through its funding mechanisms. Businessmen complain constantly of the contradictory demands of the country's federal agencies. Energy, though nominally in the hands of private companies, is so regulated as to be effectively a national service. The same goes for communications—to date.

This is inevitable. The world is too complex to be left to the interplay of market forces alone. Businessmen themselves, in many instances, are coming to realise this. Oil company presidents and no less a capitalist than Henry Ford II have recently called for more, not less, government intervention in the energy market. Businessmen operate best in conditions of stability, and stability is what national planning can provide, properly undertaken.

But it is the effectiveness that counts. Bad planning is worse than none at all — it creates the illusion of stability without the reality. What is wanted is a concerted programme to work out a methodology for national planning. The work of federal agencies needs to be codified and collated, inconsistencies ironed out, realistic targets set and unrealistic mandates removed.

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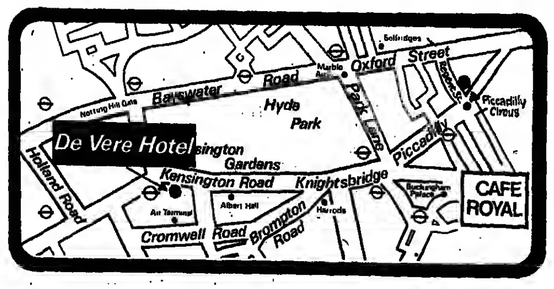

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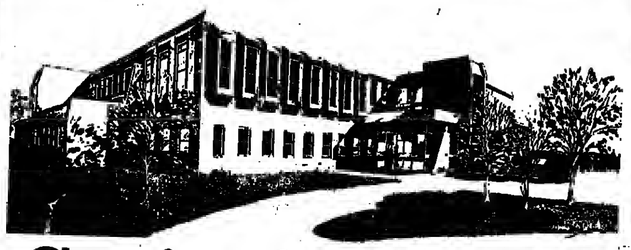

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The computer hall is 5500 square feet in area and contains the latest in 2900 technology via twin 2960 mainframes with 3 megabyte core storage under DME4 and VMEB as appropriate. There are on-line programming facilities, and in 1980 a network of data capture devices will be linked on-line to the mainframes. In addition the site has been designed and planned to cater for any foreseeable expansion in terms of hardware and staff. Linked with the mainframes are devices including Ventek and Redifon equipment.

There is a well appointed operations staff rest room, a games room, a dining hall in the building complex, and a tennis court and putting green. These opportunities are likely to be of interest to people who are experienced operators looking for, and having the potential for, a wider involvement than pure computer room operations control.

TO APPLY

Applicants, male or female, are invited to send a simple ONE PAGE NOTE (handwritten) covering the following brief details: name, address, age, day time and home telephone numbers, operations experience to date, previous employers and positions held, relevant hardware experience, present employer and position and salary to ANTHONY SPURR, Recruitment Division, quoting the reference number G721 at the address below. All applications will be dealt with promptly and in strict confidence. Applicants will not be asked to complete application forms prior to an offer. Please note on the reverse side those companies to which you would not wish your application to be sent.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

Datasolve International

OPERATORS

This could be the last bit of filling in you'll ever do.

Please write in ballpoint or complete at typist.

Surname _____ Forename _____
Address _____

Tel. Home _____ Office code & extn. or switchboard _____
Age _____ Place of Birth _____
Are you prepared to relocate? _____ UK Abroad (delete)

Experience. Please tick all applicable boxes.

Job Titles
OPERATOR ☐ CONSOLE OPERATOR ☐
SENIOR OP ☐ SHIFT LEADER/MANAGER ☐

Machines: Please specify model — **Operating Systems**

IBM ☐ _____ ☐
ICL ☐ _____ ☐
Honeywell ☐ _____ ☐
Univac ☐ _____ ☐
Burroughs ☐ POWERHOUSE/PROGRASP ☐
PDP ☐ MVT/MFT/SOS/ICS ☐
Other ☐ _____ ☐

*Delete where inapplicable.

Position sought: _____

Minimum salary £_____ Notice required/Date available _____

Cut out the whole advertisement and post to the address below.

Knight Computer Services Ltd.,
14 Old Park Lane, London W1Y 4HL

Staff Services Division of BOC Datasolve Group and a member of Computing Services Association

Knight

01-491 4706

OR WRITE FOR DETAILS

Principal Computer Operator

Philips Research Laboratories require an experienced Operator to join a small team in the Computer Department.

The Department runs a computing service for scientists and engineers involved in many varied areas of research. It is based on two ICL 1904S processors, using a special version of George III which allows both to access the same file store. A DIGICO 1601 front end connects 18 terminals. Later in 1979 an SEL 32 computer system will be installed to do CAD of integrated circuits.

The person chosen will be involved in all usual aspects of operating, and will also be required to assist and deputise for the Chief Computer Operator in organisational and technical matters. Consequently, several years' ICL and George III experience are essential together with a technical knowledge of communications equipment. Flexibility and flexibility to learn about new systems is also needed.

A two day week is worked, normally 8.30 a.m. to 4.30 p.m. with shift hours (5 times in two weeks) from 2.00 p.m. to 10.00 p.m.

Please apply to **Mr M. L. Malpass, Philips Research Laboratories, Cross Oak Lane, Salfords, Redhill, Surrey. Telephone Horley 5544.**

Philips Research Laboratories

PHILIPS

COMPUTER GRAPHICS OPPORTUNITIES

TEKTRONIX INTERNATIONAL, based in Amsterdam, is the Europaan Marketing Center for our very successful Computer Graphics product line. We ara interviewing for a:

MARKETING CO-ORDINATOR

He will report to a Europaan Product Managar end ba rasponsible for initiating, implementing and monitoring programs for major products and accounts in Western Europe. His activities will also includa assisting in planning, training and maintaining a close relationship with the field sales force. Candidatas should hava exparience in the computer or terminal industry, good organisational skills and an ability to communicate wall. Salas experience is halpful but most important is an interast in marketing and an aggressiva, businesslike attitude.

We era also interviewing for a:

PRODUCT SUPPORT ENGINEER

(HNC or equivalent)

to provide technical support for our computer graphics products. Knowledge of minicomputer hardware, software and interfacing will ba an advantaga. Savaral years of work experiance are desirable but new graduates willing to learn fast will also be considered.

We offar attractive salaries, a share in profits, vacation allowanca, usual large-company benafits and excellant caraer opportunities.

Applications should ba written (ref. IDO) providing full curriculum vitaa to:

Mrs. M. Smit
Tektronix International Inc.
European Marketing Center
P.O. Box 827
1180 AV Amstelveen
The Netherlands

Tektronix
COMMITTED TO EXCELLENCE

Senior Operators

Berkshire — **to £4600 inc**

You don't often get the chance to join a new large DP installation where you will get extensive training and real career prospects.

The company we are helping is building one of Europe's more advanced complexes using mainframes and minis to provide a comprehensive distributed processing network. They now need two senior operators, working a 3-shift system, to help their shift leaders. The shift teams are small and the environment friendly.

We are looking for bright individuals with around two years experience on a modern mainframe or large mini, ideally with TP. The hardware itself doesn't matter as full training will be given.

The company is located in Berkshire, within easy reach of North Surrey. Benefits include easy parking, subsidised restaurant and an excellent sports & social club.

For more information call Peter Williamson, reference 2356.

Lloyd Chapman Associates
183, New Bond Street, London W1Y 0HR 01-408 1670

Opportunities in Traffic Operations

The Council is responsible for one of the largest on-line computer systems in the world for the control of urban traffic.

More than 1000 signal installations in Greater London are now controlled centrally by a multiprocessor system over a data transmission network. We are continually involved in updating programs, designing and writing new programs, and planning system developments such as more advanced traffic control strategies, and the total re-configuration of the system in the 1980s.

We have vacancies for people with programming experience in the salary ranges:

£4819-£5353 — **£3640-£4669**

A background of low-level on-line software is desirable, preferably in a process control or microprocessor application.

Full opportunity to become familiar with our current machine coding will be given.

Good conditions of service, including over 4 to 5 weeks holiday and extra day off each month. Application forms (PT/A/EO/01183) returnable by 25 May obtainable from the Establishment Officer, Department of Planning and Transportation, Room 454B, Greater London Council, County Hall, London SE1 7PB. Tel: 01-633 7791/6390.

GLC Planning & Transportation

Why not come and try pastures new

The world's largest motoring organisation can provide you with this opportunity to gain experience of insurance, mail order and marketing systems as well as helping you to make the move from 1900–2900.

Scheduler £4118-£4691 p.a.

(Inclusive of 3% Supplementary Payment) no shift working.

This is a rare opportunity for a person with an aptitude for figure work to become involved in scheduling and monitoring the performance of 3X 2960's and other associated computer and data preparation equipment. Projects will include improving throughput, sizing future workloads and setting up a scheduling and mounting system to run under VME/B.

For further details, please contact; J B Burton, Personnel Officer, Automobile Association,

AA THE AUTOMOBILE ASSOCIATION
Fanum House, Besing View, Basingstoke, Hants. RG21 2EA.
Tel: Basingstoke (0256) 62971.

COMPUTER OPERATOR

We are part of a large international Organisation and we wish to recruit a D.A.T.A. 100 Operator for our installation in South Warwickshire

The successful applicant will be responsible for the processing of a wide range of manufacturing and financial applications in a day-shift only environment. A minimum of 12 months' operating experience is desired and preferably with some I.B.M. OS JCL knowledge.

The existing configuration, shortly to be upgraded to key-to-disc, is linked via a communications network to a large data centre in the U.S.A. running dual 3033s operating under MVS/JES3. This is a genuine opportunity for the right person to join a small team working in an active and challenging environment with a recognised career path leading to either complete operations supervision or programming.

An attractive salary will be paid to the successful applicant.

Please contact

The Personnel Officer
Rockwell-Meudsley Ltd.
Alcester
Warwickshire

PROGRAMMERS/ANALYSTS

with Honeywell experience
CONTRACT or PERMANENT

M.S.R. Software Limited

Send c.v. to: M.S.R. (Software) Ltd.
2 Chichester Rents
Chancery Lane, London WC2
or telephone 01-458 3866

(Re-advertisement)

Computer Manager

The Public Health Laboratory Service Board invites applications from suitably qualified candidates with an-lhusiasm and drive for the position of Manager to take charge of a newly-formed Data Processing Unit.

The Board provides a microbiology service at 52 laboratories throughout England and Wales, at the Central Laboratory, Colindale, NW9, and from April 1, 1979, at the new Centre for Applied Microbiology & Research, Porton Down, Wiltshire. A number of computer projects already operate and these are to be brought under centralised control together with future developments. A CTL computer is now being installed at Porton Down.

The Manager will be responsible for planning the development of a coherent, organised service. He/she will be based at Colindale though at first, during the commissioning and programming of this new computer much time will be devoted to the unit at Porton Down.

The successful candidate is likely to be a graduate with sound experience of modern computing methods. He/she, while responsible to the Board's Headquarters officers, will work with senior scientific and medical staff of the different units.

The appointment will be under NHS terms and conditions of service with a salary on scale 23, £6965-£8423 plus £384 London Weighting.

A copy of the job description may be obtained from Dr R. A. Bassett, PHLS Board, 61 Colindale Avenue, London, NW9 5EQ (Tel. 01-200 1295) to whom applications with full career details and names and addresses of three referees, should be sent by May 31, 1979.

PHLS Public Health Laboratory Service Board

ARE YOU A GOOD IBM OPERATOR?

WOULD YOU LIKE TO MOVE INTO CUSTOMER SUPPORT?

A large European Service Company has an opportunity for an experienced (shift leader or similar) IBM DOS operations person with good knowledge of utilities to strengthen their customer support team. A good all-round ability is required together with a flexible approach to problem solving. Applicants will probably be in the age range 20-25, must be willing to work Saturdays and able to work in the Bucks/Barks area. Salary in the range £4,000-£5,000 p.a. **with an expenses paid Company Car.**

Future prospects include participation in a bonus incentive scheme which could add 15-30% to the basic earnings.

Apply in confidence to:

J. Royce
83 Clerkenwell Road
London EC1R 5HP

CiC — CREDIT INDUSTRIEL ET COMMERCIAL

In view of the development of the Bank's systems, applications are invited for the following appointment:

SENIOR COMPUTER OPERATOR

to commence June, 1979.

Candidates must have between 2-5 years operating experience of minicomputers in general and ideally of the ICL 2903/1900 range in particular.

Salary will be commensurate with the high standards and qualifications expected from suitable applicants, who should send brief details of their professional background, together with an indication of present and expected salary, in writing to:

MR. S. A. JOYCE, Staff Manager
74 LONDON WALL, LONDON EC2M 5NE

Contract

Programmers-Analysts

If you thinking of doing contract work why not start here by registering now for immediate and forthcoming requirements.

For further details contact: Bridget Kotchie.

RENDECK LTD. 100 New Bond St. London W1. Tel: 01-629 5438

Rendeck RECRUITMENT CONSULTANTS

SEVERN - TRENT WATER AUTHORITY
LOWER SEVERN DIVISION

SENIOR COMPUTER/ TERMINAL OPERATOR

(PA 10)

£4323-£4850 per annum, plus £312 per annum supplement

Applications are invited for the above post within the Division's Finance Section, which is at present based in Gloucester.

The person appointed will be the senior of two operations staff working a single shift system on two computers.

The installation consists of:—
(a) An ICL 2903, which forms part of Severn-Trent's distributed processing network and used mainly as a terminal for financial systems.
(b) A Honeywell 2020 used locally for measured billing and scientific data.

Experience of an ICL 2903 would be an advantage.

Application forms and further details from the Divisional Personnel Officer, Severn-Trent Water Authority, Lower Severn Division, Reservoir Road, Edgbaston, Birmingham B16 9RU. Telephone: Birmingham 454181.

Closing date 21 May (incl.)

Opportunities in Saudi Arabia

TAX FREE SALARY £8,500

PROGRAMMERS

The Data Processing Department of our Associates in Jeddah have immediate openings for Programmers with proven experience in DOS, RPG, and COBOL.

The installation is a medium sized IBM 370 and DL/1 and CICS/VS are already in use.

Two year single status contracts include free accommodation, one month leave annually with air fare paid to and from the U.K.

Please write with career details to: ENPRO Business Representatives Limited, 7 Old Park Lane, Mayfair, London W1Y 3LJ. REF: EDP.

ENPRO

Recruitment LOGISTIX in Informatics

Interdata Programmers West Germany

Salaries: to £15K

An International client with a long track record of successfully implementing new systems for European Public Institutions and Government Agencies is seeking several INTERDATA orientated Programmers for a long standing German project. They now require additional personnel to cope with the installation of new hardware and extended applications areas. You will become a member of one of several specialist project teams in which you will make a valuable contribution whilst simultaneously expanding your own technological frontiers. We are specifically requested to recruit only FORTRAN and Assembler Programmers who are fully familiar with Interdata 8/32 hardware. You should therefore offer two years or more programming experience on this machine. The applications areas in which you will be involved comprise mathematical modelling, testing, data communications and verification. On completion of the project you will be given every opportunity to relocate to one of the company's other European offices.

L/10/05/A

Sr. Project Analyst-Managers Thames Valley

Salaries: c £9.5K

A leading commercial organisation with recently acquired IBM hardware requires Senior Project Analysts and Project Managers for its advanced distributed processing plans. Currently, the main computing activities take place in U.K. with supporting Data centres in U.S. and E.E.C. The Company is seeking several additional personnel to conduct an appraisal of its proposed software and project plans within the particular areas of accounting and audit operations. Ultimately, it will be essential to control and monitor both the progress of the total project and also the allocation of staff. Ideally successful candidates should hold a numerate degree and have had five years experience both within programming and systems analysis/design. Experience with recent IBM hardware in an on-line environment is a decided advantage, as is the desire to travel during the course of employment.

L/10/05/B

Camac Programmers Copenhagen or Holland

Salaries: to £15K

Scandinavia's leading Systems House and Software Consultancy seeks several Programmers with current expertise of software development and design on micro processors, preferably Intel 8085/6, Zilog Z80 and Motorola 6800. You will be required to relocate immediately to one of our client's European offices. It is anticipated that employment will commence in either May or June. For further information telephone one of our Recruitment Advisers immediately.

L/10/05/C

U.K. Re-Insurance Group City of London

Salaries: £6.5K-£9.5K +

A leading City of London based Re-Insurance and Merchant Banking Group with a recently acquired U.S. subsidiary with extensive and soon to be upgraded computing hardware requires additional D.P. personnel up to Project Manager level. Ideally you must offer a programming background in PL-1 under OS or MVS and will either have on-line expertise or a desire to move into this area or Data-Base design through participation in our client's training programmes. Of particular importance is the ability to work as a member of a Specialist Project team under strict documentation and programming standards. A second language — ASSEMBLER/COBOL — would in addition be of considerable advantage. Our client in addition to an excellent salary offer a reduced rate mortgage, private health and non-contributory pension schemes plus restaurant facilities. Interviews will be held on the company's premises towards the end of the current month.

L/10/05/D

Analysts + Programmers New South Wales

Salary: $A 14,000-$A 22,000

One of Australia's leading Finance Companies in the fields of Merchant Banking, Foreign Exchange and Portfolio Management is seeking a variety of d.p. staff who wish either to emigrate permanently to that country or to take a minimum of 2 years contract. Applications Programmers should offer at least two years practical experience in COBOL and preferably on large up to date Burroughs hardware. Inevitably a banking or insurance background will be an added bonus. Systems Analysts must show a prior programming background and demonstrate that they have completed at least one system from feasibility to implementation. For further information regarding interviews in London, you should contact us either by submitting a detailed C.V. or calling before 15th May.

L/10/05/E

Logistix, Freepost 32, London W1E 3YZ

360 Oxford St. London W1N 9HA

Licenced by D.O.E. Licence No. SE (A)2887

01-491 4636 LOGISTIX Telex: 28800

Real Time Mini turns night bird!

More and more clients offering salaries up to well over £10,000 have forced us at Real Time Mini's place to man — or, rather, woman — the telephone 24 hours a day.

Reason is that we want to be available to qualified callers who can't sleep for wishing they earned more money.

Like PROGRAMMERS, PROGRAMMER/ANALYSTS, SYSTEMS DESIGNERS and PROGRAMMERS, SOFTWARE ENGINEERS, PROJECT MANAGERS and HARDWARE ENGINEERS with at least a year's Real Time Mini or Micro experience — any configuration — and Assembler and/or high level language.

If your experience includes DEC — especially using RSX11, RSTS/E, Intel, Motorola Micro or Interdata 32 — don't even apologise for calling at 11 p.m.

If you also have a degree — computer science or other maths-orientated subject — we'll wake up even faster.

Applications: Commercial business systems, Customer support — various roles, Process control, Flight simulation, Micro processing, Word Processing, Communications — tele and otherwise Message switching, Lecturing and training, Military systems, Automatic test systems.

Locations: London, Home Counties and further afield — including W. Europe.

Ring Real Time Mini's 24-hour, personal answer hot line now — 01-836 9711 or 9882. Day and night, ask for Beryl McLaren.

Jupiter Computer Appointments (Real Time Mini's Place) Suite 41/42, 12-13 Henrietta Street London, WC2

COME TO WHERE THE HILLS ARE GREENER

– AND CLOSE AT HAND!

Our Client, Cara Data Processing Ltd., is a wholly owned subsidiary of Aer Lingus and the largest computer services organisation in Ireland. Over the past four years, the company has doubled its turnover, expanding rapidly both at home and overseas. Accordingly, there are now exceptional career opportunities for trained computer personnel, based in Dublin. It is an opportunity not only to develop your career but to enjoy a most attractive lifestyle. Dublin is still only half an hour's drive from mountains and countryside. If both prospects interest you, read on...

CARA operates four main divisions: Consulting, Computer Hardware, Caradisk (interactive time-sharing) and a Data Centre Division. The latter is based on IBM and Honeywell computers and markets packages such as Carapay, Caradebt, Cashmaster (Creditors) and Financialman (Nominal Ledger). It is also involved in the development and maintenance of custom-built systems.

A number of vacancies now exist for professional D.P. staff based in the Data Centre in Dublin: –

SYSTEMS ANALYSTS/ LEAD PROGRAMMERS

with considerable programming and systems experience involving a number of major projects.
Salary Scales: £5,926—£8,276.

SENIOR PROGRAMMERS

with a minimum of 3 years experience.
Salary Scales: £5,556—£6,758.

For both vacancies a knowledge of IBM 360 Assembler or COBOL is desirable.

So if you would like to move to Ireland and into a flourishing career, write at once, enclosing a Curriculum Vitae to Barry Crowley at

PARC Personnel & Recruitment Consultants A DIVISION OF AER LINGUS

PARC, P.O. Box 834, Wrights Lane, Kensington, London W8 6SR.

CU ASSURANCE

YOU ARE CLOSER TO WORKING FOR COMMERCIAL UNION than you THINK!

- ★ GOOD SALARIES ★ PAID OVERTIME
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- ★ FREE LUNCHES
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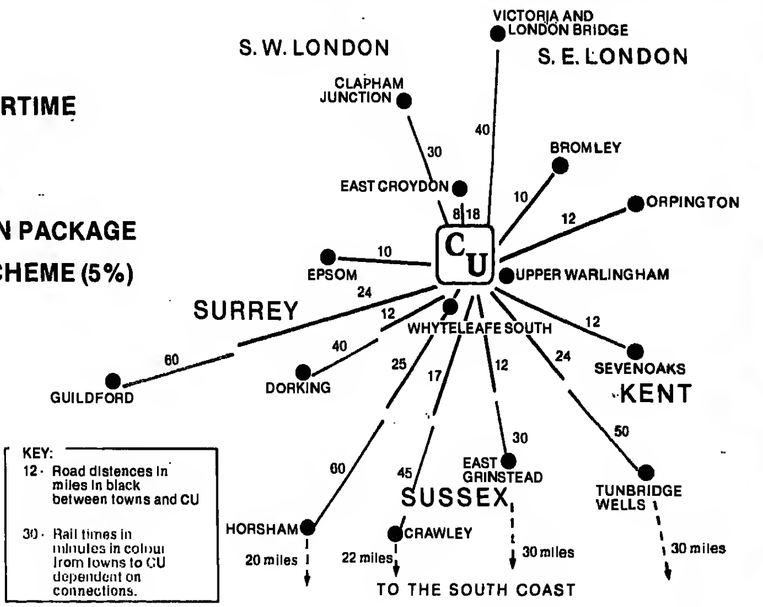
- ★ TWO STATIONS NEARBY: Whyteleafe South, Upper Warlingham.
- ★ EASY COMMUTING FROM: Central London, Kent, Surrey and Sussex.



KEY:
12 · Road distances in miles in black between towns and CU

30 · Rail times in minutes in colour from towns to CU dependent on connections.

Q. Which company is advertising for Programmers?
A. Commercial Union Assurance Ltd.
Q. What level of experience do I need?
A. At least 18 months as a COBOL or ASSEMBLER programmer, on any machine.
Q. Where would I work?
A. In modern offices, pleasantly situated, at Whyteleafe, in Surrey.
Q. How would I travel?
A. By car — no traffic jams, pleasant country roads, ample car parking.
By Train — Whyteleafe South B.R. Station is almost opposite the offices and Upper Warlingham is readily accessible.
Q. What if I cannot commute?
A. The company offers an excellent relocation package.
Q. If I relocate can I visit the area and, if married, bring my spouse?
A. Of course — the company want you to be settled. Personnel will assist with temporary accommodation and any other problems.
Q. Will I improve my earnings?
A. Probably, but of course it depends on what you currently earn. Sterling salaries will be reviewed after six months and the company has cost of living and performance reviews in June and March each year.
Q. Is it a vast installation with problems of scale?
A. The installation will shortly be a large dual 3031, operating under MVS, and using ROSCOE. Distributed Processing is currently being trialled for a large branch network. However project team organisation creates generally small, closely knit teams with a combination of analysts and programmers at all experience levels.
Q. Are the benefits real?
A. Definitely so and they are available to all after a short qualifying period.
Q. How does the preferential mortgage scheme work?
A. With the CU scheme you only pay 5% interest and mortgages are more readily available, at significant levels of advance.
Q. Is there a Pension Scheme?
A. As you would expect with a major insurance company, an excellent scheme which has only a 2% contribution. Life Assurance cover is four times annual salary.
Q. How can I improve the quality of my life?
A. The working week is only 33¾ hours. There is flextime so you can start as late as 10am or finish as early as 4pm.
Q. If I work longer can I earn more?
A. If overtime is necessary you are paid for the extra work performed.
Q. Will I be expected to undertake standby duties?
A. Yes, on occasions but when you do generous payment will be made.
Q. Can I eat locally and are there luncheon vouchers?
A. Better still there is a restaurant on site and meals are free.
Q. Does the company encourage sport and recreation?
A. Yes, the company has its own sports ground in Kent, with facilities for most sports. Also at Whyteleafe there is a recreation area with facilities for snooker, table tennis etc and an active chess and bridge club.
Q. Will the company train me?
A. In all the skills you need to equip you for the work you will be undertaking. This includes other programming languages, new equipment and different responsibilities.
Q. Is there a career path?
A. There are many. You may wish to stay in programming or move to analysis. Either way you can progress as quickly as your ability and willingness to accept more people or technical responsibility permits. Promotion is on merit and will occur as appropriate — It is not dependent upon waiting for the annual performance review.

Positions open to male and female applicants, please telephone (24 HOUR ANSAPHONE) to discuss, write or send coupon to address below, quote ref CW134-9H

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COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS

CAPP ASSOCIATES LONDON AND MANCHESTER

Computing Services Association

Please send me further details and an application form

NAME

ADDRESS

TEL Nos: HOME

BUSINESS

(USED DISCREETLY)

KNIGHT PROGRAMMING SUPPORT LIMITED

143/144 ROYAL EXCHANGE BUILDINGS MANCHESTER 2

CONTRACTS NORTH & MIDLANDS

GEC 4080

Immediete twelve month contract lor the right applicant with experience in production control on the ebove.

c£220 p.w.

CICS/PL1

Our client in the Midlands urgently requires programmers to work on a CICS on-line system using PL1/DOS/VS. Various applications — long term projects.

c£230 p.w.

[illegible]

Contrects of varying lengths for Cobol or Assembler programmers. Various projects throughout the North & Midlends.

PDP11 RSX11M/O CDRAL 66

Our client in the North, requires an immediate programmer with some design experience. Process/production control experience vital. 12 month contract.

c£NEG p.w

HONEYWELL GCOS COBOL

Three months plus contrects throughout the North and Midlends for experienced Honeywell programmera. Various projects.

c£230 p.w.

ICL EXPERIENCE?

Plan, Cohol, Filetab. Contract opportunities throughout the North and Midlands. Numerous applications.

c£220 p w.

IMS/COBOL

Cobol programmers with IMS (both DB & DC) required by our cliant in the Midlends. Development. Contrects six months plus.

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PDP11 RSTS/E MACRD 11

Basic +2 programmers required for our Midlands client. Manufacturing environment. Contracts six months plus

c£230

IBM COBOL?

370 Cobol programmers required by e number of our clients. Contrects of six waeks plus North & Midlends.

FOR DETAILS OF THESE AND OTHER CONTRACTS PLEASE CONTACT JUDY LEES/LYNN BARTON ON 061-833 9341/5 (24 HRS.)

ANALYST/PROGRAMMERS LANCS C£5,500

Pleasant location. Staff required to supplement a project team for the expansion of work at present. IBM 370 OS Cobol experience vital

Ref 1085

PROJECT MANAGER LIVERPOOL TO £7,500

Our client requirea a project meneger with lectory/menufacturing experience. Work involvea planning and inatelling new systems. Advanced IBM hardwere.

Ref 1143

PROJECT LEADER MIDLANDS £6,300 +

Project leader required for on-line development team. Main involvement systems, design work on ICL equipment Cobol/Plan.

Ref: 1140

SYSTEMS ANALYSTS YORKS C£6,000

Our client require aystems enelysts to get involved on e conversion end instell new ICL equipment. Productivity bonus, relocation expenaes.

Ref 1073

PROGRAMMERS LANCS TD £5,500

A large concern require Cohol or Assemblar programmers to work on IBM hardwara in an expanding installation.

Ref: 1149

SENIOR PROGRAMMERS NORTH WEST C£6,000

A house purcheae scheme end flexltime ere offered to auccessful epplicants with Cobol or Assembler experience. New installetion.

Ref. 1022

SYSTEMS ANALYSTS NORTH WEST C£6,500

Our client require experionced systems analysts to work in various installations throughout tha North-west. ICL experience nn odvantage.

Ref. 1102

PROGRAMMERS DERBYSHIRE TO £6,000

Our cliant raquire Fortran programmers to work on DEC aqulpment in a commerciel anvironmant. Vary plaasant location.

Ref 1124

SYSTEMS PROGRAMMER SCOTLAND C£7,5DD

Our cliont requiros an experienced systems programmer to work on IBM equipment. Pleasant location, reasonebly priced property.

Ref: 1089

FOR DETAILS OF THESE AND OTHER VACANCIES PLEASE CONTACT JOAN JOHNSTONE ON 061-833 9341/5 (24 HRS.)

DATA PROCESSING RECRUITMENT SPECIALISTS

Computing Services Association

PERMANENT OPPORTUNITIES

1-2 YEARS' EXPERIENCE
TRAINEE ANALYST PROGRAMMER LONDON £6,500

Our client, one of the world's leeding suppliors of high technology products end services to world-wide energy end industriol merkets, ere seeking a trainee enelyst programmer. If you heve 12 MONTHS commerciel COBOL programming experience this is a fentastic opportunity. They have large T.P. network with links to Europe end offer full training in detebase and T.P.

- ★ Fantastic job opportunities
- ★ Excellent prospects lor promotion
- ★ Training in ANALYSIS, T.P. and DATABASE

REF: 2092

PROGRAMMER CITY £6,500

Do you heve potentiel to become e teom leedor? Do you have 2 years' COBOL programming exp? If so, then this international conglomerate would like to hear from you. Successful candidate will heva opportunity to supervise end become involvod in system design Burroughs mechine experience an asset.

- ★ Excellent promotion prospects
- ★ Season ticket scheme/sports & social club

REF: 7011

PROGRAMMER CITY [illegible] + MORTGAGE

Our client o mojer merchent bankers based in the City has a vacancy for o programmer to work on real-time financial systems for foreign exchange, investments and various other banking systems. They offer excellent prospects end training. Ideal applicant will have et least 12 MONTHS experience of BASIC on ANY MINI

- ★ Excellent promotion prospects
- ★ Superb company benefits including FREE LUNCH
- ★ Subsidised mortgage

REF: 2289

PROGRAMMERS CITY £6,500 NEG

Expanding commercial body based in the City seek programmers with minimum 6 MONTHS experience of ICL COBOL to move on to analysis. Company retain ICL 1900's and DEC PDP II's, WITH APPROX. £4M invested in their computers. The successful candidate will find him/herself in a duol role — working on both ICL ond PDP machines and training will be given wherever necessary

- ★ Large numbers of brand new projects
- ★ Xmas bonus
- ★ Subsidised canteen

REF: 7009

PROGRAMMERS LONDON to £7,000 + MORTGAGE

BRAND NEW INSTALLATION! Our client, a subsidiary of mejor international banking group is seeking several programmers to work on new projects. They retain minis end are interested in talking to candidates with either FORTRAN, ALGOL or COBOL (pref. on minis — although will consider mainframe exp.) or banking/financial experience. DON'T MISS this opportunity — RING NOW!

All brand new projects

- ★ Chance to get involved from the beginning
- ★ Excellent perks including good pension scheme and full banking facilities

REF: 2289

IBM PROGRAMMERS LONOON to £5,500

Move onto IBM 3031! If you heve 12 months' IBM COBOL experience and e strong desire to succeed — then let us arrange an interview for you with this leeding engineering group. They can offer an attractive career end are going over to MVS and CICS when they instal the 3031. Programmers with DL/I VSAM and CMS experience will have e distinct advantage.

- ★ Incentive bonus end Xmas Bonus
- ★ Private pension/LVs/STLS.

REF: 22A

2 YRS. +
PROGRAMMERS CITY to £7,000 + MORTGAGE

Programmers get into banking! superb opportunities open for several IBM COBOL programmers with MINIMUM 18 months experience, RPGII an advantage, to join an exciting environment with all new development work. Company have large T.P monitor using CICS and have new IBM equipment on order

- ★ Excellent promotion prospects
- ★ Perks include sub-mortgage, sub restaurant, ticket schemo ond non-contributory pension

REF: 2259

PL/1 PROGS N. LONDON £7,500 c

World-wide engineering company engaged in processing of hydro-carbon products is currently installing T.P. monitor to large IBM 370. With expansion, they are recruiting PL/1 programmer with at least 3 years' experience and preferably with either CICS/VS or IDSM. This is a very interesting position ond person will become involved with accounting, cost evaluation end project management systems.

- ★ A wise move — good promotion prospects
- ★ Internationally-famous company
- ★ Excellent career prospects

REF: 2281

SYSTEMS ANALYST to £7,000 S. LONDON

GET INTO SYSTEMS ANALYSIS! If you are YOUNG, AMBITIOUS and are presently employed as Programmer/Analyst then phone us NOW. Fantastic opportunity to join small friendly team at the beginning of new systems development, super chance to extend your experience. The ideal applicant will have at least 18 months COBOL programming background

- ★ Work with very sophisticated computer systems
- ★ New modern equipment
- ★ Superb career opportunities within the group

REF: 2301

PL/1 PROGS ALL AREAS to £8,000

We have approximately 60 jobs available throughout the London and Home Counties areas for PL/1 programmers. We have excellent opportunities for learning new languages, e.g. ASSEMBLER and COBOL, learning new database i.e. CICS, IMS, TOTAL and fantastic opportunities to go into systems and Analysis. YOU CAN'T miss this opportunity so phone NOW!

- ★ FANTASTIC salaries
- ★ All areas
- ★ Extensive training

REF:

MINI PROGRAMMERS LONOON to £8,000

Our client, a famous international group is seeking 3 programmers with at least 18 months'-4 years' experience of commercial applications on MINIS or MICROS. Ideally on DEC PDP minis using BASIC, BASIC+(2) or MACRO under RSTS/E or RSXII. These are very varied positions which involve many new and interesting projects.

- ★ Regular salary reviews
- ★ Super fringe benefits
- ★ Excellent promotion prospects

REF: 2237

SUPPORT ANALYST W. LONDON to £7,500

Ambitious young person is sought by leading British company to join small progressive team working with powerful database system. Ideal candidates will have 3 years' programming in FORTRAN with time sharing on real-time experience. Will be developing and implementing databases for clients and will be responsible for all aspects of their support.

- ★ Excellent pension, sickness, life ass schemes
- ★ Good career progression
- ★ Relocation expenses

REF: 2247

SENIOR MANAGEMENT

PROJECT LEADER U.K./SCANDINAVIA £9000c

Famous International Group is seeking Project Leader to develop major database system for distribution business in Sweden. BASED IN ESSEX the successful candidate will take full responsibility for co-ordinating between the two countries and the total systems development from start to finish, using the most advanced software available. If you would like to know more — then ring NOW!

- ★ Some travel to Sweden
- ★ Excellent promotion prospects
- ★ 1st class relocation expenses

REF. 7017

MANAGER LONOON £12,000 NEG

As market leaders in their field and with exceedingly high turnover, this well-known organisation has exciting plans for the future! They seek senior person for their management services division with proven management ability and successful achievement in the implementation of medium-sized systems preferably in an IBM environment. Position will involve planning ond advising for information and systems services of company

- ★ Excellent career prospects
- ★ Excellent perks include Co. CAR

REF. 7009

SYSTEMS ANALYSTS CITY to £8,500

Computer services division of a large financial services company require 3 systems analysts for their various groups. Ideal applicants will have programming backgrounds with good IBM systems, pref REAL-TIME experience. If you can communicate effectively at all levels, have the ability to contribute to business decisions and have accounting or financial systems experience Phone NOW!

- ★ Excellent fringe benefits
- ★ Good career progression
- ★ Involvement at all levels

REF: 2296

SENIOR MANAGEMENT

[illegible]

Multi-national conglomerate company are seeking a consultant with at least 5 years' DP experience. Our clients are heavily involved in MINI and MICRO computer systems. The ideal applicant will have sound mini experience and preferably will be able to take initiative and responsibility, manage projects and staff and be able to communicate at both business and technical levels.

- ★ All expenses paid
- ★ Excellent fringe benefits
- ★ Good promotional prospects

REF: 2233

CONSULTANT LONDON to £10,000

International conglomerate has several openings for successful consultants to work throughout the London area. They are seeking computer professionals to work in a financial environment. Candidates will be expected to have any mainframe database experience either IDMS, IMS or DMS etc. . . . This is a super opportunity to enhance your career.

- ★ Challenging positions
- ★ Excellent company benefits
- ★ Super prospects within the group

REF: 2230

BUSINESS SYSTEMS S. LONDON/KENT to £8,500

Our client an international engineering company has a new opening for a Business Analyst. The position involves close liaison with the user departments problem solving and seeking improvements. To work on various projects. Ideal applicants will be under 40 and have experience in manufacturing environment preferably on material and production control.

- ★ Excellent working environment
- ★ Super promotion prospects
- ★ Progressive organisation

REF: 2297

KNIGHT PROGRAMMING SUPPORT LIMITED

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STOP PRESS

Systems Analysts

3 SYSTEMS CONSULTANTS
C. LONDON
C £7,000 + PROFIT SHARING + CAR

A small but active software house based in SW London needs 3 systems analysts for the following major applications. The first analyst needs to have ICL 2903/4 or 1900 OII experience of 4 years or more, to work on a major financial application. The second needs to know the 2960 machine as this involves an interesting MIS conversion and upgrade from an existing ICL 1900. The third consultant should have stock or production control experience for an ICL 2900 under VME8, using TP and IDMS. All three vacancies offer attractive working conditions including 4 weeks' hols and 6 months' sick pay. CW 19/1.

SYSTEMS ANALYST
MID-MIDDX. to £7,000

Get totally involved in redesigning, virtually from scratch, all the company's applications for a large Electronics subsidiary of this International organisation. Some of the systems, which will be running on their sophisticated H69 computer, will use the latest DATABASE techniques. With 2 years' or more systems experience (any machine) you will share in the following excellent benefits — removal expenses, flexitime, CPS, 4 weeks' hols. and subsidised canteen serving great food. CW 19/3.

SYSTEMS ANALYST
WELWYN GARDEN CITY to £7,500

An International pharmaceutical organisation with a major investment in the latest IBM DOS/VS CICS DL1 installation requires a systems analyst with a proven record of systems implementation to work on a variety of business systems. Make a real contribution by joining a company with excellent in-house training and offering relocation expenses, CPS, 4 weeks' hols., and free BUPA. CW 19/6.

SENIOR SYSTEMS ANALYST
MID-SURREY £6,500

Why not join a company based in a lovely part of Surrey? This major household product manufacturer has a large and sophisticated IBM system and has on order the latest IBM 4341 computer. A senior commercial analyst is needed to work on a range of new sales accounting and on-line order entry systems. Along with relocation expenses, other company benefits include CPS, 4 weeks' hols., annual bonus and an active Sport and Social club. CW 19/9.

SYSTEMS ANALYST
MID-MIDDX. to £7,250

Our clients, who are a major garment manufacturer with an advanced IBM 370 DOS/VS installation, require a systems analyst who can contribute experience in the manufacturing or commercial systems area. The company uses screen coding and interactive programming as part of its advanced approach to computing, and a career with them would be highly beneficial. Perks include CPS, 4 weeks' hols., a subsidised canteen and staff purchase scheme. CW 19/4.

SYSTEMS ANALYSTS
N. LONDON to £7,000

One of the most famous Finance houses in the country using IBM mainframes, is seeking young systems analysts wishing to enlarge their previous 2 years' systems experience and work on a variety of financial, reporting and MIS applications. Being a large but friendly company with first rate offices and facilities they can offer 4 weeks' hols., Non CPS and subsidised canteen. Your particular machine experience is not important, neither is a programming background essential. CW 19/7.

SYSTEMS ANALYST
MID-SURREY £6,000

This vacancy is for the above mentioned company with latest IBM 4341 computer on order. The post of systems analyst could suit an analyst programmer who wishes to progress into straight systems design. Here a manufacturing background would be an advantage with a minimum of 3 years' DP experience. CW 19/10.

JUNIOR AND SENIOR CONSULTANTS
£ NEGOTIABLE CENT. LONDON

Six large, well-established consultancies wish to recruit systems people with all-round experience on third generation equipment and the right personality to deal with clients who require first-rate service. Technical Communications Consultants are also required where in-depth implementation experience of IBM or DEC latest ranges essential. Excellent fringe benefits and prospects. CW 19/2.

SYSTEMS ANALYST
W. LONDON to £7,000 + CAR

A car manufacturer of world renown wishes to recruit a qualified systems analyst to enhance and develop manufacturing and commercial systems on their IBM and DEC real-time installations. Programming background is an advantage but the major requirement is an ability to see a project through successfully. Company benefits include relocation expenses, flexitime, an excellent subsidised canteen, 4 weeks hols. and an attractive bonus scheme. CW 19/5

SYSTEMS ANALYSTS
N. LONDON c£6,500

Our clients, based in N. London, are one of the most successful manufacturing and exporting companies in the UK. Being manufacturing oriented they have a variety of systems on their IBM 370 which incorporate the use of DL/I and IBM's COPICS. If you are interested in this side of DP and want a job with a future, contact us now. They offer relocation expenses, CPS, 4 weeks' hols. and an annual bonus. CW 19/8.

SYSTEMS ANALYSTS
SLOUGH £5,500 to £8,000

Join this growing internal services department of a major household and industrial products organisation. Having the latest ICL 2904 plus Datapoint mini computers, this company can offer a really great future. A manufacturing background would be advantageous without necessarily having programming experience. Perks include relocation expenses, 4 weeks' hols., CPS, and a subsidised canteen. Full training will be given and promotional prospects are excellent. CW 19/11.

UCA Recruitment Consultants
UNIVERSAL COMPUTER ASSOCIATES LIMITED
01-995 3883 (01-958 6138 Evenings)
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Quality first

We are confident of a successful and exciting future. ARE YOU?

Systems Designers Limited needs computer professionals at all levels to work in very nearly every field of computer operation, not only in the UK but also in Europe, the Middle East and the USA. Although a large amount of work is centred around our Camberley, Frimley and Manchester offices there are many long term projects which offer opportunities to see other countries throughout the world.

Our continuing requirement is for staff at all levels. We are looking for final year graduates as well as experienced software and systems professionals.

Salaries are negotiable up to £12,000 p.a. according to ability and experience.

Systems Designers controls and encourages the career progression of its staff giving them a wide variety of experience of both project applications and computer systems.

The company runs productivity bonus, insurance and pension schemes and offers assistance with relocation.

Telephone Ann Gregory for an application form and further information about the company or write to:
Bill Hockey, Operations Director, Systems Designers Limited
1 Pembroke Broadway, Camberley, Surrey GU15 3XH
Telephone Camberley (0276) 62244

Systems Designers Limited has an unrivalled reputation in modern computer technology as applied to mini and micro computers in real-time environments. This reputation is resulting in a company-wide expansion plan, which offers plenty of opportunity to the right people. **We are British, independent, currently 200 strong and confident of a successful, exciting future.**

Our principal work areas are currently:

COMMUNICATIONS: Message switching, telex systems, Communications management systems, computer communications.

INDUSTRIAL: Process control and monitoring, plant control simulation, high speed data analysis, distributed microprocessor system.

MILITARY: Modelling, avionics and radar systems, complex rigs, simulators, microprocessor missile systems.

SOFTWARE PRODUCTS: Compiler technology, software design techniques, MASCOT, information processing systems, STATUS and VIEWDATA systems.

CONSULTANCY: Complex military systems software and systems development technology.

CHELMSFORD BOROUGH COUNCIL

COMPUTER PROGRAMMER

Post No. 19
Salary Range £4,245 to £5,073 p.a.

The Council requires a man or woman with at least twelve months' programming experience in RPG, Cobol or other high level language. The appointment will be made at a point on the scale corresponding to the successful applicant's qualifications and experience with progression to the maximum by annual increments subject to satisfactory service. The annual pay award for local government services is due on the 1st July and this will enhance the salary scale offered.

Housing accommodation will be considered in suitable cases and the successful candidate, if he needs to move, can benefit from the payment of removal expenses and certain other resettlement allowances.

The Council's computer is a Univac 90/25 with discs and magnetic tapes and it is currently being upgraded with the addition of a V.D.U. and extra store. An interesting variety of applications is being handled, and the successful candidate will play a part both in the development of on-line facilities and in the preparation of programs for new applications.

Application forms may be obtained from the Personnel Officer, Civic Centre, Chelmsford CM1 1JE, to whom they should be returned by 21st May, 1979.

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or Tel 01-328 7251

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OPPORTUNITIES IN SALES

South Of England **1st Year c. £8,000**

Our client is a leading member of the fastest growing electronics group in the U.K. They manufacture and market a highly successful and respected range of sophisticated data-communications systems, and are well established as European market-leaders in this field.

In order to keep pace with the success of, and heavy demand for, their powerful range of products and in order to continue the development of the business in forthcoming years, the company is now seeking to enhance its field sales force, and is therefore able to offer a number of unrivalled opportunities to sales executives with the determination and ability to succeed in a demanding yet highly rewarding environment.

The ideal candidate will offer previous experience of selling data communications systems. However, a successful track record in any computer or electronics related field is also relevant, since the ability to communicate effectively with senior management in either technical or general terms is an important consideration.

A comprehensive period of thorough orientation will be given to prepare the appointed persons for success in the field. The substantial base salary is enhanced by a generous commission scheme, which is guaranteed for an initial period, and the provision of a company car. In addition, a valuable range of fringe benefits is offered, including twenty-four days holiday, making these exceptional opportunities to join one of the success stories of British industry particularly attractive.

Ref: SW1/1005

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OPERATORS

IBM OS £6000
Two Operators with good OS knowledge are needed for Central London site. Good shift system worked with midweek rest days.

IBM OS £4500
Senior Op. required for N. London site with good J.C.L. experience. Standard perks apply for financial institution.

IBM OS up to £4500
Operators with six months experience are urgently required for companies in Central London and Home Counties.

IBM SYSTEM 3 £3900
Minimum of six months required for financial institution as a junior operator. Good prospects into programming.

ICL 1900 £4600
Operators with 18 months GII + or 2900 experience are required for this busy site in The City, plenty of overtime available.

ICL 1900 £4500
Operators are required for this site in C. London, 1 yrs. + GII/GIII experience required, good perks.

ICL 1900 £3600
Busy installation in The City urgently requires a junior operator with 6 months GII/Manual operating experience. The company can offer excellent career prospects into programming, etc.

DEC PDP 11 £5000
Company in City are looking for a senior operator with 2 yrs. + experience with DEC equipment. Some technical background would be an advantage. Two shifts only.

HONEYWELL OCOS £4600
Surrey site is recruiting operators at all levels. Applications will be considered with other mainframe experience.

DEC PDP 10 £6000
Senior-operators with 2 yrs. + experience in DEC equipment are invited to apply for this position offered by a site in C. London. Perks include BUPA and subsidised meals.

UNIVAC £3500
any in S.E. London is currently looking for junior operators. Some experience with DEC equipment would be an advantage. Perks include canteen facilities, Life Assurance scheme and 4 weeks' holidays.

DATA CONTROLLERS ALL AREAS
£3000-£5000

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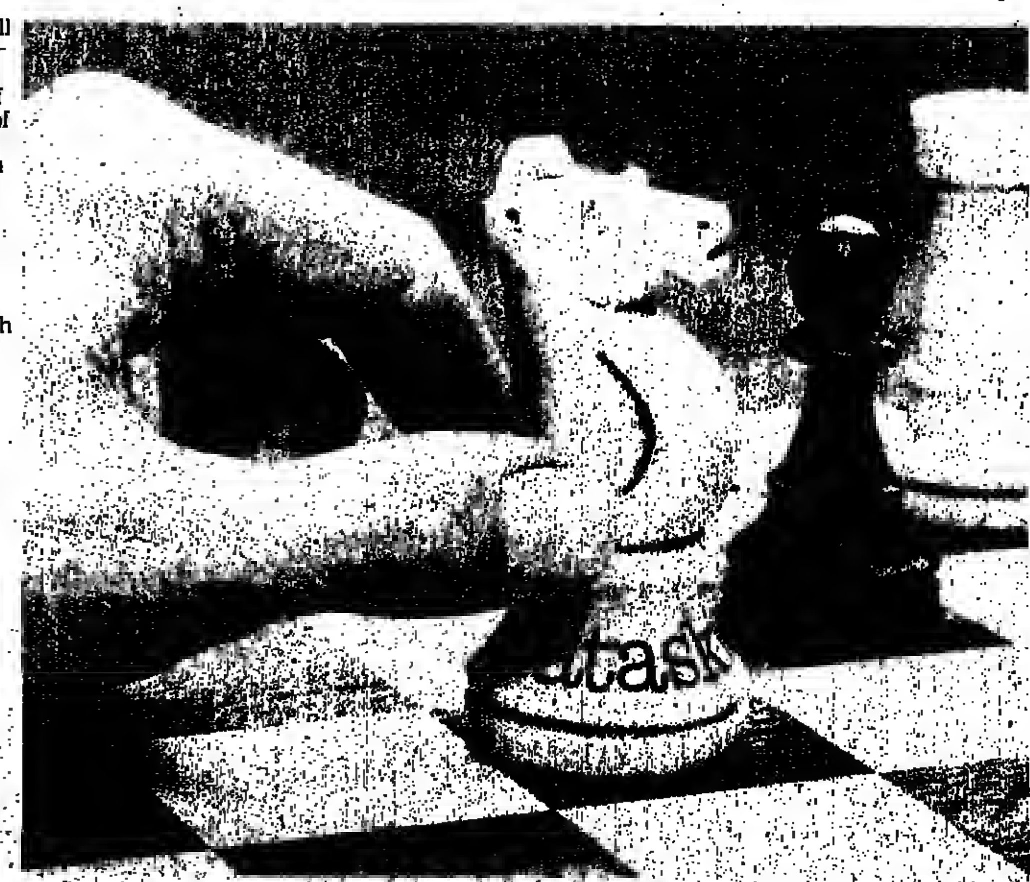
Government Services Department is very successful. Its success is directly attributable to the quality of its staff and complexity of the projects it handles. Our staff work on assignments both in the UK and Europe and on projects which cover the whole spectrum of ICL equipment from the tried and tested to the 'just announced'.

We are looking for programmers, systems programmers, systems designers, project leaders and senior consultants. We will base you in Cardiff, Bristol, Reading or London to suit your preference and to ensure minimum disturbance to your domestic life or life style.

The experience we are looking for falls broadly in the following categories:

2-4 years experience £4000-£5500
People experienced in 2900 and 1900 COBOL, Fortran and/or 2903 RPG2 and COBOL. There could also be vacancies for graduate trainees who have spent 1-1½ years as trainees with a manufacturer and now want to move over to development work.



5-8 years experience £5500-£7500
Similar experience as before, but with a greater depth of experience in complicated applications development projects, probably as a designer or project leader. There are also vacancies for systems programmers with large operating systems experience, George 3 for example or TP systems.

8 years + £7500-£12,000
Here we are looking for people prepared and able to act as consultants whether in the area of applications development or software programming and/or on-line and TP systems.

If you are interested please phone: Gerry Grundy, Mahen Tampoe, or Tony Curran at Reading (0734) 581255 or write to one of us at: ICL Dataskil, Reading Bridge House, Reading, Berks RG1 8PN. Please quote reference CW1375

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Successful applicants will be between 25/40 resident in the above areas. A proven track record in sales essential, sales experience in W.P. or D.P. advantageous.

Telephone for a confidential appointment with Margaret Connelly on 01-629 7262 at:

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sma

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This is a unique opportunity for an Operator, Senior Operator or Shift Leader to break out of operations into Systems and Software programming, tuning and amending IBM software, writing in-house software etc.
The client, a professional organisation, is transferring onto IBM equipment, initially an IBM 370/125, eventually a 4341, possibly under VM/CMS. The successful applicant would work closely with the Systems Programmer who has extensive IBM experience.
Whilst relevant IBM experience would be useful, we feel this opening will suit a person of good academic standard, with an aptitude for programming, of smart appearance and with a professional attitude.

We strongly recommend this position, for more details or an initial discussion, write, return the coupon or telephone the number below. Positions open to male and female applicants. Quote ref: CW130 9T.

Please send me more details of the Junior Systems Programming position.

Name _____

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Data Processing Manager

Hi-Fi Distributors; c.£9,000 plus car

Our client is a highly successful and rapidly expanding distributor of high fidelity and associated equipment in the United Kingdom. At their head office and principal warehouse in Buckinghamshire they are beginning the development of their existing Burroughs B-80 system to meet the needs of their rapidly growing business.
They wish to appoint a Data Processing Manager to develop their data processing activity and control their existing systems whilst this is taking place. This is an exciting opportunity to create a department almost from scratch and take an active part in the company's growth.
Applicants, aged 28-35, should be graduates or have an equivalent professional qualification, with exceptionally relevant experience. They should be familiar with Burroughs or other manufacturers' systems. Experience in a distributive trade and associated financial systems would be an advantage.
They must be prepared to take an active part in all levels of the data processing function, but the main requirement is for a person who is capable of offering sound advice on the most effective means to be employed. This is a unique opportunity for someone to develop their design, development and managerial skills.
Salary will be negotiable around £9,000 per annum + company car will be provided, and there is the usual range of other company benefits.
For an application form, men and women are invited to write or telephone in confidence to Geoffrey Laycock at the address below (telephone 01-229 6742) quoting reference No. 600/CW.

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Applicants must have at least eighteen months' experience in a computing environment, preferably in high performance mini or mainframe computers, with training in OEM peripherals, Pertec equipment, Data Products and Control Data disks.
Location: Kingston, S. London, N.W. London and Surrounding Area.

SUPPORT ANALYSTS: £6,000-£11,000 — CAR — NORMAL BIG COMPANY BENEFITS
Experienced software professionals are required for pre and post sales support. A background including in-depth knowledge of operating systems, compilers and general scientific computing is desirable.
In addition to support of S.E.L. products, these posts offer an opportunity for involvement with the latest developments in a wide range of technical application areas.
Location: S.W. London.

Men and Women interested in joining this young and expanding company, phone: 01-643 8020 — or write with career details to:
Mr. M. Woolger — Engineering
Mr. M. Fishburn — Software Support

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Read this if you want to make a career in Holland as a

SYSTEMS ANALYST

(Salary £10,000 to £14,000 per year)

THE COMPANY
Intercontinental Transport (ICT) BV consists of a group of companies which, under the name INCOTRANS, is involved in all areas of transport. Thanks to our specialised know-how and experience the Incotrans group can effect all types of transport, such as ocean transport, coast traffic, river shipping, road transport and air transport.
To complete our services we can also offer our clients extensive facilities in stevedoring, factoring, warehousing, insurance and documentation.

THE JOB
We are inviting applications for the position of EXPERIENCED SYSTEMS ANALYST in our Rotterdam Electronic Data Processing Department.
The systems development department works via R.J.E. to an IBM 370/148 in Gothenburg. For the real-time system SPEED we are using four connected Data General Eclipse computers (4 x 256Kb, 6 x 200Mb discs), placed in Rotterdam, Antwerp and Bremen.

QUALIFICATIONS
The applicant who will primarily work with the SPEED development should be fully acquainted with E.D.P. matters like "data bases" and "distributed systems."
The computer language used in Incotrans is "COBOL."
Candidates with shipping experience are preferred.

WHAT WE CAN OFFER
An interesting position in our office in the world's largest port; pleasant working surroundings; a good salary plus the usual big company benefits and conditions and, of course, our assistance in finding suitable lodging.

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If you are interested in this job please send your application to the Personnel Department of Intercontinental Transport (ICT) BV, Wilhelminakade 39, 3072 AP ROTTERDAM, Netherlands.

Incotrans
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One Sales Engineer will report to our southern area manager, based at Bracknell, and cover London postal, part of Surrey, Sussex and Kent.
The other one will report to our northern area manager and cover the Manchester and Birmingham areas.

Qualifications

We would expect the southern area candidate to live in the designated territory and preferably within reasonable distance of Bracknell.
The northern area candidate would work from home which ideally would be in the Manchester or Birmingham areas.
We would look for the following experience and background:-
* 2-3 years selling experience, preferably in the sale of Computer Related products.
* Technical background and an understanding of scientific and engineering computing applications.
* An understanding of Computer Aided Design and Computer Graphics which whilst not being essential, would be a distinct advantage.

Rewards

These are first class opportunities to develop your sales career and grow with an expanding company.
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Computer Manager

£4,953-£5,253 — **EWELL**

To manage a small team of Computer technicians and supervise the day-to-day running of a UNIVAC V76. Twelve terminal multi access system provided a service to the college and local schools.

You should be a competent programmer who wishes to gain management experience whilst continuing to develop programmer skills. Some knowledge of block structured language would be an advantage. This post which is open to men and women offers responsibility as well as an opportunity to maintain technical proficiency. Thirty-six hour week. Twenty days paid holiday a year.

Application form from the Chief Administrative Officer, North East Surrey College of Technology, Reigate Road, Ewell, Epsom, Surrey. Tel. 01-394 1731.

SURREY COUNTY COUNCIL

ROYAL MILITARY COLLEGE OF SCIENCE
COLLEGE OF SCIENCE
SHRIVENHAM, SWINDON, WILTSHIRE

VACANCIES IN OPERATIONAL RESEARCH

The Operational Research Branch of the College has a limited number of vacant research posts at Senior Research Scientist / Higher Research Scientist/Research Scientist level.
Successful candidates will join small multi-disciplinary research teams working on problems of current interest to the Ministry of Defence and other Government Departments. An interest in computer simulation/scientific programming or scientific gaming is desirable for some posts but an essential requirement is that candidates show a broad and enquiring outlook.
Appointment at Senior Research Scientist, level requires experience in practical OR, preferably in the application of OR to military problems, plus an ability to lead a research team.
Applicants should have a good first degree in any scientific or engineering subject for this grade. Appointments will be for a 2 or 3-year period in the grade of Senior Research Scientist (4 years post degree experience minimum), salary scale £6154-£6898 p.a./Higher Research Scientist (2 years post graduate experience minimum), salary scale £4101-£5448 p.a./ Research Scientist, salary scale £2839-£4416 p.a. depending upon qualifications and experience.
Applications, forms and further information from the Civilian Admin Office, Royal Military College of Science, Shrivenham, Swindon, Wilts SN6 8LA. Telephone 0793-782551 extension 421.
Closing date for applications 25 May 1979.

ANALYST/ PROGRAMMER £6-7k

ENFIELD

Here is the opportunity to fully develop your skills as a systems analyst.

By joining a small and friendly department you will become involved in a wide range of applications from basic accounting systems through to on-line order entry and stock control. The installation is a Univac 90/30 for which our client intends developing other systems necessary to match their expansion programme.

Our client is a major manufacturer supplying the construction industry with a comprehensive range of nationally known products.

To be considered for this position you must be presently employed as a Programme/Analyst, be educated to at least 'A' level standard, have been in DP for 4 years or more and gained good COBOL experience.

If you have these qualifications the starting salary is within the quoted range. In addition there are re-location expenses where applicable, contributory pension scheme, subsidised canteen and sports and social club.

For full details and an application form please write or telephone to Miss Erica Beresford at these offices—

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Modern Marketing Limited
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Telex 21407 MMHGRP G

Analyst/Senior Programmer

To lead a team responsible for the detailed design of interactive and batch mode information processing systems, using a GEC 4070 computer.
You should have at least 5 years' experience in assembly and high level languages including FORTRAN IV and you should also be familiar with at least one Operating System and Job Control Language. Experience of multi-access systems and a knowledge of BASIC and CORAL 66 are desirable.

Programmer

For flowcharting, writing and testing of programs, using a GEC 4070 computer.
Reporting to the Senior Programmer, you should have a minimum of two years' programming experience in FORTRAN and at least one assembly language. Some knowledge of BASIC and CORAL 66 is desirable.

Please telephone for an application form or write quoting ref.: P/87 to:
Jack Burnie, Marconi Space & Defence Systems Ltd., Applied Electronics Laboratories, Browns Lane, The Airport, Portsmouth. Tel: Portsmouth (0705) 699414.

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Roberts House, 80 Manchester Road
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Office: 061-941 1922. Home: 0270 78684

GEMINI

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Interested? Then contact Chris McDonnell on Leeds 707411 or write with brief details to:

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SYSTIME

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COMPUTER MANAGER

c.£17,000 p.a. + Company car
(Ref. V.7)

SYSTEMS TRAINING MANAGER

c. £12,000 p.a.
(Ref. V.8)

Ashanti Goldfields Corporation (Ghana) Ltd.

Applications are invited for the above vacancies, which may be of particular interest to computer professionals wishing to progress their career and broaden their experience in an overseas environment.

The installation in Ghana, West Africa, comprises an ICL 1901T, 48K, with EDS 60 and local AVDU's with teimiprinters. Installation conversion to 2900 Series is under consideration.

Applicants for both positions should ideally have past experience in a similar size installation, where they have had extensive involvement in systems and programming maintenance and development

The Computer Manager will be responsible for the administration and day-to-day management of the Computer Department and must be able to oversee all projects and operations by detailed participation.

The Systems Training Manager will be responsible for the design and implementation of system improvements, modifications and development, and will be expected to train local staff in Systems Design, Analysis and Implementation.

Experience of working overseas and possession of formal computing qualifications will be an advantage.

Conditions of service are in line with modern expatriate practice and include:

5 year contracts
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Please write in confidence, quoting appropriate reference to: —

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Citibank NA, one of the world's largest international banks, is looking for two programmers to join their Operations Centre in South East London.

We need people to take responsibility for the development, programming and support of our transaction processing systems: men and women who want the challenge of a highly technical environment, and who can motivate others and put practical ideas to good use.

We currently use 1 megabyte and 5 x ¼ megabyte PDP 11/70's and are continually revising our hardware and software itinerary to meet the challenging demands of the Bank.

The experience necessary for the positions includes a sound knowledge of RSX11—Macro programming language, and systems experience in a commercial environment.

The salary range is £6,000-£7,500 p.a. A very attractive range of benefits — which will add considerably to your earnings in real terms — includes low-cost mortgage and personal loan plans, non-contributory pension, free restaurant, special Season Ticket loans and 4 weeks' holiday. Lewisham House is a new and fully air-conditioned multi-storey building which is conveniently located near shops and Lewisham BR station.

Applicants should write or telephone: Peter Russell, Systems Manager, Citibank NA, Lewisham House, 25 Molesworth Street, London SE13. Telephone: 01-852 4370 Ext. 3827/3669.

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MINI COMPUTER PROJECT LEADER

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one

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City of Manchester
Treasurer's Department

Systems Analyst

£5,727-£6,060

including £312 p.a. supplement

An additional post has been created in the City Treasurer's Department to co-ordinate data processing activity in the City's Direct Works Department.

The City operates a large mainframe computer with over 80 video terminals on behalf of all Departments of the City Council. Experience of equipment similar in extent is required.

The Direct Works Department is responsible for maintenance of City Council properties, including over 100,000 dwellings, and is also involved in new building projects and in servicing of lifts and other plant. Stores, costing and payroll work is already done on the computer and the Direct Works Department is anxious to develop quickly into the areas of estimating, resource planning, valuations of work in progress, bills of quantities, etc. A knowledge of the building trade would be a great advantage.

A 35-hour week is in operation, with a flexible hours system, and there are excellent sickness, pensions and annual leave provisions. Assistance with removal expenses may be given.

The City Council operates a Union Membership Agreement under which a new employee is required to become a member of a recognised Union.

Please write to the City Treasurer, P.O. Box 314, Town Hall, Manchester M60 2JR, giving personal particulars and details of experience and qualifications.

LIVERPOOL

Programmer to work 20 hours or more per week

Joseph Parr Ltd. are based in Bootle and have a Data General NOVA computer system with on-line links to remote sites. The company require an experienced BASIC programmer to work a minimum of twenty hours per week on the maintenance and development of their computer system.

Applications are invited from experienced programmers, with the ability to take on responsibility for the data processing system, interested in a full-time or part-time position.

Contact: Mr. N. T. Cheetham, at Joseph Parr Limited, 372 Stanley Road, Bootle.
Telephone: 051-922 4181 or 051 941 1922.

Gemini Computer Systems Ltd.,
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GEMINI Recruitment

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Do you have three years Assembler programming experience to your credit? Then here is an opportunity to progress further and become a specialist as a SYSTEMS PROGRAMMER with a world leader in oil field services.

This position provides an exciting opening for someone who is ambitious with a strong technical bias and wishes to develop into systems programming.

In addition to being responsible for maintaining operations systems software you will assist in selection of hardware and software whilst fulfilling an essential consultancy role concerning database communications systems within the department.

Some knowledge of database and data communications would be an advantage but you will be thoroughly trained in all aspects of the work by the Chief Systems Programmer. The DP department, a young and dynamic one, is at present engaged on many new projects throughout the world and career prospects are excellent so you can expect to progress rapidly. The mainframe is an IBM 370/125 running under DOS/VS. The department also has an IBM System 34 whilst the 4341 is on letter of intent.

In addition to the salary mentioned you will partake of the benefits normally associated with a major international company. Why not take this chance to progress in a positive direction, and phone or write to Mrs Ann S Jones, Cripps, Sears and Associates, (Personnel Consultants), Burne House, 88/89 High Holborn, London WC1V 6LH. Tel. 01-404 5701.

Cripps, Sears

Computer Operator

£70 per week

If you have experience in the use of disk computers, some book-keeping knowledge and a GCE 'O' level or equivalent education you could join British Airways as a computer operator.

We need a man or woman to operate a Nixdorf magnetic disk computer with a visual display unit at Kershaw House, on the Great West Road, Hounslow. You would be working for the Airways Pension Scheme of which there are 50,000 current members. Other duties would include reconciling computer input and output data and some general accounting duties.

As one of the world's leading international airlines British Airways offers excellent conditions of employment including a holiday pay supplement, subsidised restaurants, index-linked pension scheme, sports and social facilities and favourable holiday air travel opportunities. Earnings incorporate a productivity supplement paid subject to achievement.

If you are interested please phone (01) 897 3246/3247 between 9am and 4pm or write quoting ref. t940/CW/AG.

Recruitment & Selection, British Airways, PO Box 10, Heathrow Airport – London, Hounslow, Middx TW6 2JA.

British Airways welcomes applications from suitably-qualified Registered Disabled Persons.

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Post Ref: FD 34092

Scale from £4313 to £4788 including supplement and shift allowance.

An experienced operator is required to control the operation of an IBM 370/158 (1½ Mb) computer in a modern purpose-built installation at Wakefield.

The system processes a wide variety of job mix, batch and interactive, administrative, financial and technical, centrally and through an extensive terminal network using OS/VS, CMS and CICS, under VM/370.

The Senior Operator will take charge of two operators and be responsible to a Shift Supervisor for the efficient operation of the system. Three shifts are worked between 06.30 hours Monday, and 22.30 hours Friday.

Easy access to motorways and countryside. Relocation expenses may be paid in appropriate circumstances. Excellent recreational, and meal facilities.

Application forms may be obtained from the Department of Finance (CAO), PO Box 22, County Hall, Wakefield, WF1 2QN. (Tel: 67111, ext. 2621) and should be returned by 21 May 1979.

For further information please contact Mr Clarke (Ext. 2670).

BLACKPOOL
BOROUGH COUNCIL
Borough Treasurer's Department

SYSTEMS ANALYST/PROGRAMMER

(£3,732-£4,632)

Applications are invited from experienced Cobol programmers for the above post in the Computer Section. The installation is a Honeywell 2020 with magnetic tapes and discs, which provides a wide range of services throughout the authority.

Starting salary depending on age, qualifications and experience, will be within the range £3,732 to £4,632. Generous relocation allowances are payable in appropriate circumstances.

Applications stating personal details, academic and professional qualifications, present and previous employments, full details of relevant experience and the names and addresses of two referees, must be received by the Borough Treasurer, P.O. Box 4, Municipal Buildings, Blackpool FY1 1NA, by Thursday, 24 May 1979.

METROPOLITAN BOROUGH OF
Rochdale

TREASURER'S DEPARTMENT
(Computer Section)

SYSTEMS ANALYST/PROGRAMMER

A.P.5/SO1 £4,773/£5,568
Rochdale is situated 12 miles north of Manchester on the edge of open moorland.
An I.C.L. 2960 system has recently been brought into operation and the machine and staff are housed in purpose designed accommodation in New Municipal Offices.
The Authority have an ambitious development/conversion plan for the next three years. The successful candidate will occupy a vital post in the Systems and Programming Team of 14. Local Authority experience would be an advantage.
Assistance with removal and other expenses and housing accommodation in appropriate cases may be available.
Further details of the post may be obtained by ringing Mr. Wright — Telephone No. Rochdale 47 100 ext. 3310.
Application forms available (by quoting ref. no. C.707) from the Chief [illegible] Officer, [illegible] P.O. Box [illegible], Municipal Offices, Smith Street, Rochdale, OL16 1XS, to whom they should be returned by 24th May, 1979.

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£12,000 - £15,000 + Car

Location: Home Counties (North)

Our cliant — who menufecturas and merkats mini-computers in both OEM end End-usar customars — seeks an axpariancad menagar to take control of its field service activities end in-housa rapair facilitias.

He will ba rasponsibla for managing an axpending dapartmant providing contract and on-call maintenanca sarvice for the compeny'a producte throughout the UK. In eddition, he will menage the repair centre handling equipmant sant in from tha company'e customers ehd dietributors both at homa end overeeas es well as from its European eubsidieries. Both division are expactad to run el e profit, and suitable candidetas will heve demonstreted their succese in managing people and controlling resources, probably at branch leval in e large orgenisetion.

Interested candidetas should eubmit a curriculum vitee (in totel confidence) to:
A. P. BAKER
Menagemant Consultent et tha eddress below

Ref: RW 19/1

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£15,000
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Hutchinson Scoggins Associates have been retained to find two progremmers conversant in BASIC and I8M Serios I.

Working for e major international consultancy your future career and prospects are assured. The importance of those posts is signified by the salary indicated which is negotiable upwards for candidetes of exceptional ability.

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GEOFF MARSH on 01-499 4501 NOW

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Thie company iee small, but fest expanding, soltware houso, backed by n large British industriel concern, which has invested heavily in in-housu dovolopment end teeting feclities.

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If you heve progremming experiance in either high or low level lenguages, end heve en interest in thie kind of system, pleese give me a call. You may well find that the rewerds to be geined in thie congeniel company are very tempting.

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Ref: RW 19/4

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All vacancies are open to both male and female applicants.

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01-491 4706 OR WHEN BUSY 01-439 3411.

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Applicants should offer a good academic background together with commercial experience gained in a computing environment. Personality end the ambition to succeed, rether than technical ability, is of prime importance to our client.

The company offers an excellent starting salary plus an attractive bonus package, geared to both individual end team performance, of approximately 10%.

Ref: 51/1004

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Salary Negotiable C. £7,000

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£5,000 — £7,000

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SOFTWARE PROGRAMMERS will need at least 2 years experience of Assembler level programming, preferably with a working knowledge of one or more high level languages. Software for existing and new products is currently under development and opportunities exist to progress into a number of specialist areas.

The package offered includes an excellent starting salary and a number of benefits including, if appropriate, an excellent relocation package.

Positions are open to male or female applicants. Please telephone (24 hour Ansaphone) to discuss or write to our CROYDON office, quoting ref: CW 136 - 9J.

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Full trainign provided
£3,500 p.a. plus overtime

Our client, a large engineering organisation, running commercial systems, offers an operator with 12 months' experience the move into programming. For the first twelve months, you would work as an operator, DAYSHIFT only, and then progress into a trainee programming position. During this time, the mainframe will be phased out, and a network of mini computers, using database and realtime techniques, will be implemented.

Full training on programming this new up-to-date equipment will be provided, and opportunities to then progress within the programming and systems area will be available.

General conditions include Bonus Payments, PAID OVERTIME, Pension Scheme and regular reviews.

This is a unique position, offering a rare opportunity to progress into programming. For a confidential discussion, please telephone Mike Heesien (021-632 6848). Ref. CW160.

CPC
COMPUTER PERSONNEL CONSULTANTS

4th Floor, The Rotounda
New Street, Birmingham
B2 4PA. 021-632 6848

THE UNIVERSITY OF LEEDS
DEPARTMENT OF SURGERY
(LEEDS GENERAL INFIRMARY)

Applications are invited for suitably qualified candidates for a temporary post of COMPUTING ASSISTANT in the above Department, to assist in the analysis of studies of malnutrition in surgical patients. Familiarity with SPSS would be an advantage. The appointment will be made for a fixed period of one year.

Starting salary in the range £3,394-£3,834 on the IB Grade for Other Related Staff (under review with effect from 1 October 1978).

Informal enquiries may be made in the first instance to Mr G L Hill, University Department of Surgery, Leeds General Infirmary, Leeds LS1 3EX.

Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference number 109/14/AZ. Closing date for applications 23 May, 1979.

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(Transfer charges, if necessary).
Sampson Staff

MYRIAD

ANALYST/ PROGRAMMER

S.W. LONDON c.£5,500

This position presents a good career step for an Analyst/Programmer seeking additional responsibility, or a Senior Programmer who wishes to progress towards analysis.

The company has recently made a major upgrade in machinery with the installation of a dual 3 Mb ICL 2960 VME/B configuration and has a countrywide telecommunications network. The Systems and Programming team work to professional standards and the company provides formal training to all members of the department.

The successful candidate can look forward to taking total responsibility for a number of interesting applications, involving user contact at all levels.

Applicants should be self-motivated with sound COBOL programming experience, preferably on ICL hardware, and a background in financial and commercial systems. Benefits include Pension Scheme, Flexitime and 3 weeks' holiday.

Ref. AI/1005

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30 Fleet Street London EC4Y 1AA
01-353 0981 (24 HOURS)

SENIOR PROGRAMMER OR ENGINEER

FOR SOFTWARE QUALITY ASSURANCE

Sperry Gyroscope are among the pioneers in the introduction of Quality Assurance into the development and use of software. We are now expanding our team in this field and we have created an important new position within it. The person appointed will assist in the development and introduction of Software Q.A. Techniques applicable to a number of widely differing projects.

We are looking for an innovative person with a degree, HND or HNC in a relevant discipline who should be:

EITHER: Experienced in Quality Assurance and have a knowledge of Software.

OR: Experienced in programming and computer techniques and wish to move into the challenging new field of Software Quality Assurance.

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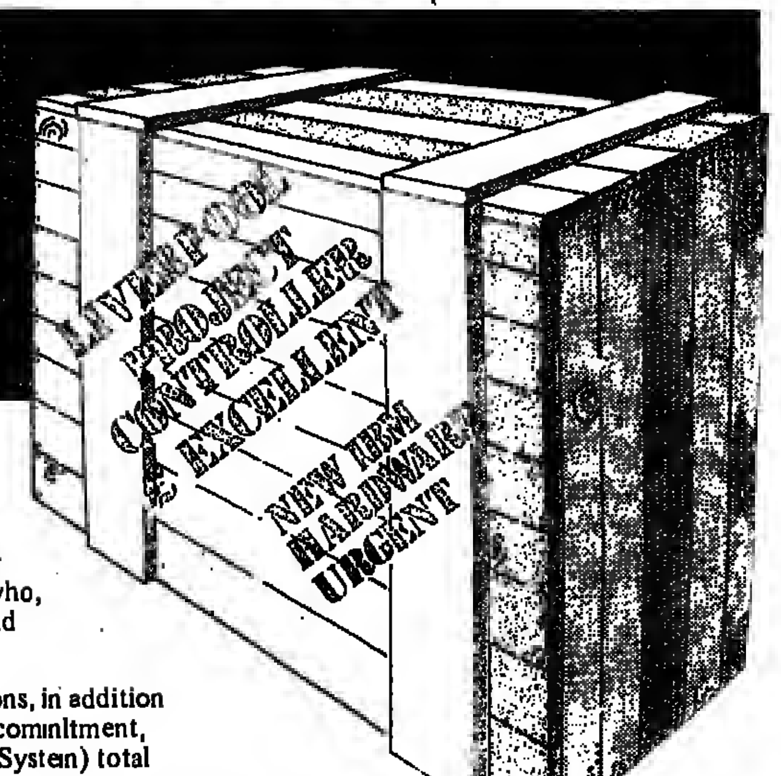

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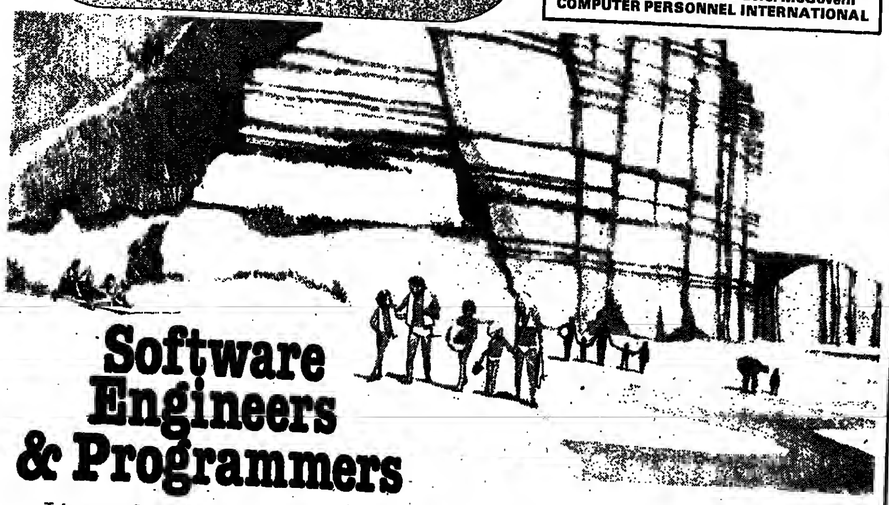

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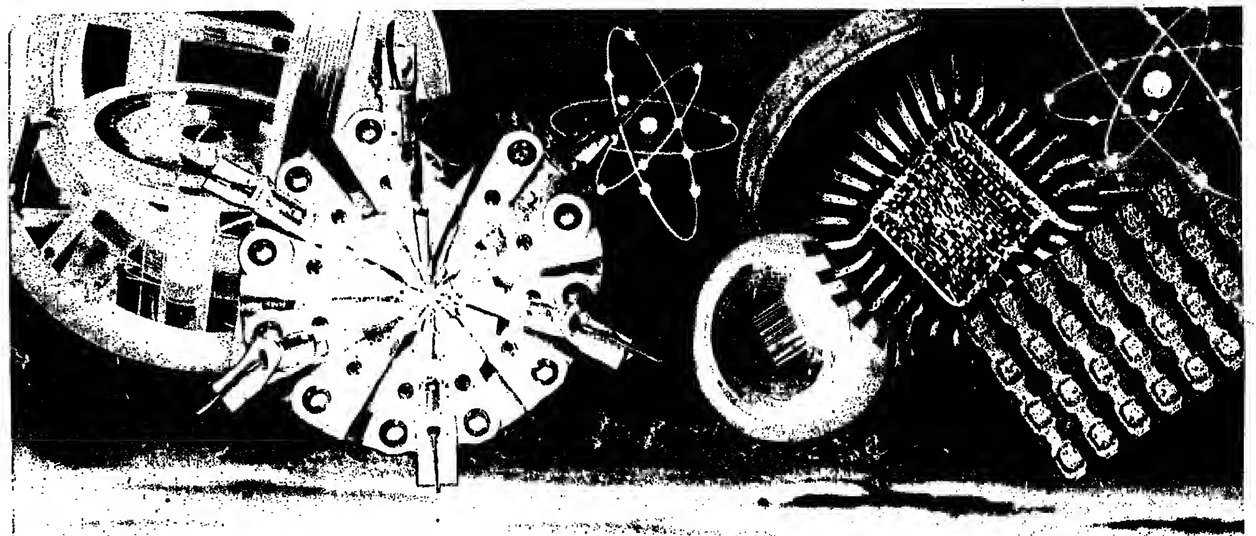

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SYSTEMS ANALYSTS AND ANALYST/PROGRAMMERS

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Telex: 23110 Telephone: 01-242 2142

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Ring David Abbey for further details on 01-261 8016.

COBOL PROGRAMMERS

Leeds **to £5,500**

Programmers are required by our client to augment existing teams working on major new systems projects.

Advanced hardware is installed and wide use is made of database, on-line and real-time facilities.

Applicants should have from 18 months COBOL experience. Any mainframe acceptable as any necessary retraining will be provided.

Candidates interested in these outstanding career opportunities which offer a good salary and attractive staff benefits should contact Ivor Norton quoting ref: CW/79028.

Ivor Norton Management Services Ltd
Recruitment Consulting Division
P.O. Box 63, Copthall Tower House, Harrogate HG1 1TS. Tel Harrogate 66029

Technical Support Manager

Surrey **negotiable c,£9,000 + car**

for a major organisation, turnover exceeding £150m, and manufacturing a wide range of essential consumer products in 12 plants throughout the UK.

Responsibility is to the Data Processing Manager for controlling all software development and applications support programming. The equipment is a centrally based IBM 370 mainframe and an extensive network of remote on-line mini computers and intelligent terminals operating in batch, teleprocessing and real time mode.

Substantial experience of applications programming, a demonstrable technical knowledge of IBM 370 operating technology, and a keen and enquiring analytical mind are the prime requisites.

Starting salary negotiable around £9,000. Usual large company benefits provided. Complete reimbursement of ALL expenses incurred in relocating. Location North West Surrey. Age not important.

TO APPLY

Please send a CV, or a letter listing professional career history to date including hardware and software exposure, current employer, position and salary, or telephone for an application form, in complete confidence, to ANTHONY SPURR, Executive Selection Division, at the address below, quoting G725. Applications from either sex.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

McDowell, Knaggs

COMPUTER RECRUITMENT, TRAINING AND CONSULTANCY

We recently said that we were now offering a Permanent Staff Recruitment service based in Worcester itself. We also said that we were looking for Computer Professionals from all walks of life for our WORCESTERSHIRE GLOUCESTERSHIRE and WEST MIDLANDS clients.

We have listed below a number of vacancies that urgently require filling, all of which [illegible] the added attraction that they offer:

— Relocation assistance
— Good salaries
— Good promotion prospects
— Job satisfaction through responsibility and variety of work

and are all located in or commutable from a beautiful part of the country where house prices are still relatively low.

ANALYST/PROG.

For IBM installation running manufacturing systems under DOS/VS using CICS. Candidates should be experienced in PL1. to £6,500 Worcs

ANALYST

Local manufacturing and retail company requires systems staff with good commercial/business experience to work on ICL 2900. to £7,500 Worcs

ANALYST/PROG.

ICL 1900 Bureau requires several people with programming background and at least 1 year's Systems experience. Salary according to systems exp. and location a choice of Cheltenham or Birmingham. £5,000 to £7,000 Chel/B'ham

SNR. PROGRAMMER

Must have 3-5 years' experience with COBOL (preferably IBM). Work is Project orientated and involves the use of 370/158 and 3031 (using CICS). c. £7,000 Birmingham

If you are interested in working and/or living in the above areas but your experience/requirements do not map on to the above vacancies, then contact us anyway for an informal discussion.

For further details contact DON quoting Ref. G101 on 0905 427077 (0299 400039 evenings and w/ends), or write to THE MOUNT, 1 St. John's, Worcester.

VME/B
COBOL
KENT
c £220 p.w.
01-262 2251

UNIVERSITY OF DUNDEE COMPUTING CENTRE

SHIFT LEADER or COMPUTER OPERATOR/ TRAINEE OPERATOR

A vacancy has occurred in the operating staff of the Computing Centre for which applications (from either sex) are invited.

The University has a large DEC-10 computer system which provides terminal and batch processing facilities to the University.

The successful applicant will join the operating staff, preferably at the shift leader level, but consideration will be given to others wishing to join at a lower grade.

Applicants must be prepared to work on a two-shift system (Monday to Friday) for which a shift allowance is paid.

Salary scales inclusive of shift allowance are:

Shift Leader	£3655 to £4523
Operator	£2815 to £3740
Trainee Operator	£2085 to £2815

Application forms may be obtained from the Establishments Office, The University, Dundee DD1 4HN, and should be returned by May 18th, 1979. PLEASE QUOTE REFERENCE EST/126/79.

CAPITAL APPTS.

FORTRAN

Programmers urgently required for Industrial and Scientific Development. £3,500-£8,000. ALL AREAS

Phone for free list of vacancies.

29, Windmill St. *London, W.1.*
637 5551 day; 636 9659 eve.

SALESMAN £20,000

A rare opportunity to join a small thriving company in Hertfordshire where success will quickly lead to the Board.

Can you SELL

SMALL BUSINESS SYSTEMS
or
COMMERCIAL MINICOMPUTERS
or
SCIENTIFIC MINICOMPUTERS

Success will lead to the top because that's how a small business operates. We provide the facilities, the big name hardware, the software. If you succeed you become a partner in a fast growing enterprise. In this company, your achievement will be rewarded and you will participate in future planning and reap the benefits of future company growth.

We will offer you £ £ £ £ £'s PLUS

★ **PARTICIPATION IN FUTURE DEVELOPMENT**
★ **PERSONAL FREEDOM**
★ **PROFIT SHARING.**

Phone: Jim Bell or Colin Stott for immediate discussion / Interview.

Castle Computer Services Limited
271 High Street, Berkhamsted, Herts. HP4 1BW. Phone (04427) 73151

Recruitment Consultant London

A well established company in the computer service industry is diversifying its operation to take in recruitment of DP personnel. The need is for a senior consultant experienced in DP and with a proven record in the recruitment field who is now ready to head his/her own operation. The person selected will report to a director and will be involved in the initial planning and formulation of policy. Once the consultancy is established the company expects it to grow rapidly and the right person can expect to grow with it.

A remuneration package in five figures will be negotiated and a company car provided.

Those interested and who have the requisite background and experience should write in the first instance – enclosing a full curriculum vitae - to *IR Division Room 25, Helton House, 20 Holborn, London EC1.*

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Ring David Abbey for further details on 01-261 8016.

Treasury Department

SYSTEMS ANALYSTS

£5,232-£5,588

St. Helen's is seeking applicants who, preferably, possess the N.C.C. certificate or equivalent in systems analysis and who have experience of GEORGE II, PLAN and COBOL.

The installation under the control of the Treasurer is an I.C.L. 1902T with 50K store, E.O.S. facilities and a communication system.

For further information please contact Mr. J. Barker, St. Helen's (0744) 24091 Ext. 2305.

Written applications should be forwarded to the Treasurer, Century House, Hardshaw Street, St. Helen's, Merseyside WA10 1RN, by 24th May, 1979.

St Helens
METROPOLITAN BOROUGH

Nation-wide opportunities for Freelancers

VNS

the facts from.....
Vic Groves
Knutsford (0565) 52577
(office hours)
or (0565) 3122

We have moved to VICTORIA

Central Computing Consultants

8 Lower Grosvenor Place, London SW1 Telex 27950 Ref. 1035
Telephone 01-834 7105
CCC

WORK WHERE THE FUTURE IS . . .

MICRO PROCESSING

West London Based + Europe & U.S.A.

Our clients, a major International Mainframe Software House, have realised the importance of MICRO PROCESSING. They have subsequently set up a fast expanding Micro Processing division to cope with requests from clients not only here in the UK, but Europe and USA as well.

Therefore we are looking for the following people:

MICRO PROCESSING PROJECTS MANAGERS — to £9,500 with 4 years' + experience ideally in a micro or mini environment but this is not essential. However, you must have experience of Cost Analysis and Feasibility Studies.

MICRO PROCESSING CONSULTANTS from £5,300 to £7,500. Minimum 2 years' + in a micro environment. We would especially like to hear from people who have had Hardware experience of the following machines:

TX 9900, 6502, INTEL 8080, 8085 or Software experience of the following:

PERSONNEL COMPUTERS S/W., PERIPHERAL + COMMS INTERFACE, BANKING, PROCESS CONTROL, AIRCRAFT ENGINEERING MONITORING & DESK TOP INFORMATION SYSTEM.

CW/19/1

DOCUMENTATION CO-ORDINATOR

Switzerland up to c. £15,000

We wish to recruit an experienced Technical Writer for a permanent position with one of our Swiss clients.

The successful candidate will join a large project team, working on up to 30 men years communications systems and will report to the Manager of Software Services. The main responsibilities will include working to tight time scales on the preparation of documentation and literature of the implemented project, for users' purposes.

Candidates must have a proven track record in technical writing and be prepared to work on their own initiative, servicing the needs of the project development teams in a highly progressive company in the communications field.

CW 19/3

LONDON

IBM ICL DEC £5,000-£9,000 + bonus

Are you stagnating in a User Environment?

Then why not keep up with the latest technology working for a Software House.

If you have upwards of 2 years' experience on ICL, IBM, or DEC Hardware, using COBOL, PLAN or BASIC, and have a knowledge of one other language, our clients would like to hear from you. They would be especially interested in hearing from people who have CICS, VME/K or VME/B experience.

This is an ideal opportunity to broaden your D.P. knowledge, as well as earning an excellent salary which will be enhanced by our clients' very attractive bonus scheme.

Get out of the rut today by phoning the advising consultant now!

CW 19/2

HONEYWELL

N.W.3 C. £5,000

Our clients, a National Transport organisation who have their Head Office in Swiss Cottage, have a vacancy for a JUNIOR ANALYST or PROGRAMMER who would like to move over to Analysis.

Their installation is a Honeywell 68/40 running under GCOS and using TDS/IDS. The successful candidate will initially train and gain experience by working with a Contract Analyst, but you will eventually be providing the base of future analytical requirements. It is envisaged that the person selected will eventually become the Senior Analyst.

Ideally, the person we are looking for will be of Degree standard, would either have had programming experience (Cobol on Honeywell Hardware) and some analysis, or a Programmer/Analyst who wishes to become a full-time Analyst.

CW 19/4

SMALL BUSINESS SYSTEMS

West London Sys. 10 + 1500 £4,500-£8,500

A major international Systems House who are better known for their mainframe activities, have a fast expanding Small Business Systems Division.

They have an immediate need to recruit people who range from Programmers with 2-3 years' experience, through to Senior Project Leaders.

We would like to hear from people who have had experience of ASSEMBLER on any machine, and if you have experience of SYSTEM DESIGN, REAL-TIME ORDER ENTRY or ORDER PROCESSING so much the better. Projects are all based on Real-Time applications on the ICL System 10 and 1500 Hardware.

Projects teams usually consist of 2-3 people. The main projects we are recruiting for are SOFTWARE DEVELOPMENT and COMMERCIAL SYSTEMS.

Salaries are well above market rate and the Company can offer excellent career opportunities. Annual bonus, plus usual Company Benefits one would expect from a Company of this size.

CW 19/5

IBM SYSTEMS PROGRAMMERS

Paris based + Worldwide Travel
Salaries up to £18,500 p.a.

We have been retained to recruit three Systems Programmers for our client, a very large and influential French Computer Services company. Employing up to 2000 people worldwide, their bureau services are based on numerous IBM machines, ranging around 3031s and 370/168s downwards, in addition to ITEL AS5s and AS6s.

Candidates must have a thorough Systems Programming knowledge of IBM operating systems and software OS/VS1, MVS, VM and CICS, and should be able to communicate with users to advise and support the various systems.

Successful candidates do not need to speak French at present, but will be required to learn the language in due course.

CW 19/6

DEPUTY DIRECTOR

CENTRAL LONDON C. £8,000 + car

A unique opportunity has arisen for a DEPUTY DIRECTOR to be responsible for SYSTEMS AND PROGRAMMING, in a medium-size, expanding computer company involved in auto motives and finance industries.

The installation consists of an NCR CRITERION 8570 plus a recently developed interactive on-line communication system using audio response equipment and (ADC 1500) on a nationwide basis, approximately 1000 terminals throughout the United Kingdom. A Data General mini is to be installed early in September.

The person we wish to recruit is likely to be in their mid 30s and will have the following:

SEVERAL YEARS' DP EXPERIENCE
CONSIDERABLE EXPERTISE OF MANAGING ANALYSTS AND PROGRAMMERS
TECHNICAL BACKGROUND PREFERABLY NCR

It would be an added advantage if you have in-depth experience of on-line systems and a programming background in COBOL or neat/3.

The company can offer an excellent career, and the opportunity to gain more responsibility with the growth of the company.

CW 19/7

SPRECHEN-SIE DEUTSCH?

Mini/Software up to £17,500+ benefits

1. Siemens 330
2. Intel 8080
3. IBM DL1/CICS

One of the most prestigious software companies in Europe is currently expanding its operations in Central Germany.

Their business is based on a wide range of projects currently being developed on both minis and Business Machines.

Due to this expansion, they want to meet several Computer Professionals who are competent in German, for project development. Technical background can be widespread, but must include software developed on minis, ideally Siemens and Intel.

We would also like to recruit candidates with experience of DL/1 and CICS to work on a development project. Systems Programming experience would be useful.

CW 19/8

PERMANENT

SYSTEMS

Mumps Specialist	2 yrs. exp.	to £11,000	Holland	Ref. B3101
Program Spvsr	COBOL/OR	to £7500	Middx.	Ref. B3107
Sen. Programmer	ALGOL	to £1780	E. Anglia	Ref. B2854
Sen. Programmer	RPG II	c £5400+mort.	City	Ref. B3005
Sen. Programmer	Assmblr/IBM	to £1500	City	Ref. B3140
Sen. Programmer	RPG II	c £5600	N. London	Ref. B3082
Anal/Programmer	COBOL/IBM	c £5600	Surrey	Ref. B3081
Programmer	Assmblr/IBM	c £5500	Herts	Ref. B3143
Programmers	COBOL/DOR	c £5500	Herts	Ref. B3141
Programmer	COBOL	c £6000	Herts	Ref. B2945
Programmer	COBOL/1900	c £10,000	W. Germany	Ref. L3110
Programmer	COBOL/RPG II	c £6000	N. London	Ref. L2837
Programmer	COBOL/2904	£6000+	City	Ref. L3037
Programmer	COBOL/Mfoi	c £6000	Berks	Ref. L3129
Programmer	PDP/RMS II	c £6000	Berks	Ref. L3078
Sys/Analyst	ICL/2903	c £7000	Middx	Ref. L3134
Anal/Programmer	Some COBOL	c £7000	City	Ref. L2981
Anal/Programmer	COBOL/Assembler	c £6500	Herts	Ref. L3000
Chief Programmer	COBOL/2900	c £8096	S. Coast	Ref. L3848
Project Leader	3/4 yrs design	c £1500+car	W. London	Ref. L3848

OPERATIONS

Ops. Manager	ICL/Shadow	to £6000	Herts	Ref. B3020
Sen. Operator	OS/VR1	c. £5960	Essex	Ref. B8109
Ops. All Levels	Any M/C	to £4500	Lancs	Ref. R2814
Shift Leader	DOS/VS	c £5000	Croydon	Ref. R2811
Sen. Operator	OS/VS	c £5000	N. London	Ref. R2804
Sen. Operator	System 8	to £5000	N. London	Ref. R2879
Exp. Operator	OR 8	to £4500	Middx.	Ref. B8108
Ops. Analyst	OS/VR	to £5500	Middx.	Ref. B3038
Sen. Operator	OS/VS	c £4896	Worcs.	Ref. R2967
Sen. Operator	OS/VS	c £5100	Middx.	Ref. R2924
Exp. Operator	B3700/MCP	to £5006	W. London	Ref. L3127
Ops. Controller	2904/JCL	c £4500	Sussex	Ref. L3100
Operator	PDP 11/40	c £4500	Middx	Ref. L3123
Operator	1900/GH	c £4000	City	Ref. L3032
Operator	System 4	c £4400	Sussex	Ref. L2741
Sen. Operator	2900/DME	to £5000	Hampshire	Ref. L2759
Operator	2903/Exec	c £5000	City	Ref. L2987
Operator	1900/GH+	c £4600	W. London	Ref. L2952
Sen. Operator	2904/Exec.	c £5000	Surrey	Ref. L2994
Operator	PDP 11/34	c £4200	Newcastle	Ref. L3102

OTHERS

Jun. Programmer	COBOL	c £3500	Middx	Ref. N3196
Sen. Data Con.	IBM	c £4000	Middx	Ref. R3098
Data Controller	2 yrs ICL	c £3900	S.W.	Ref. N2897
Data Controller	Min. 1 yr exp	to £3700	West End	Ref. R3099
Trainee Operator	O/A Levels	c £3000	S.E.	Ref. N3118
Trainee Prog.	Min. 3 'A's	c £3500	E. London	Ref. N2958
Trainee Operator	2 'A's	to £3220	Victoria	Ref. N3096
Trainee Operator	'O' levels	c. £2500	Surrey	Ref. N2942
Trainee Operator	'O' levels	c £2850	Surrey	Ref. N3058
Trainee Data Con.	5 'O's	£2900+	City	Ref. N3142

CONTRACT

★ URGENT ★

★ICL Operators	GII	South London	Ref. ME303A★
★ICL Operators	VMEB	South London	Ref. ME303★
★IBM Operators	OS	Essex	Ref. CM290★
ICL Operators	2903/4	Kent	Ref. JW395
PDP Operators		North London	Ref. CM400
ICL Operators	2903/4	Surrey	Ref. CM398
ICL Operators	GIII	West Country	Ref. MH350

If you have 2 years+ OPERATIONS experience, and are a freelance operator (or intend to go freelance in the near future), contact us for full details of our current and forthcoming contracts.

REMEMBER, we pay excellent rates (and expenses) to our contractors.

01-439 6481 (24-HOUR ANSWERING SERVICE)

EFFECTIA GRAVIS

NATIONAL HOUSE, 66 WARDOUR STREET
LONDON, W1V 3HP
COMPUTER PERSONNEL CONSULTANTS
LICENCE No. SE(A)62

COMPLETE AND RETURN TO EFFECTIA GRAVIS NOW (BLOCK CAPITALS PLEASE)

Name (in full) ....

Address (Permanent) ....

Telephone: Home .... Office ....

Type of Transport .... Date of Birth ....

Current Position (Contract/Permanent) delete .... Salary/Rate ....

Position Required (Contract/Permanent) delete .... Salary/Rate ....

Notice Required/Date Available (delete) ....

Areas Preferred: First Choice .... Second Choice ....

Experience to date: (Last Position First)

Company: Name and Location	From Mth/Year	To Mth/Year	Duties and experience

Date .... Signature .... Reg. No. DATE

Senior Support Analyst-Systems

West Midlands

Attractive Salary

Situated in an extremely attractive part of the West Midlands our client is a large and successful manufacturing company.

This is a senior position reporting to the Systems Manager where the successful candidate will assume responsibility for the overall co-ordination of various projects. Duties will include identification of user requirements and co-ordination of the design and implementation of new computer and ancillary systems.

Applicants, men or women, should ideally be educated to degree standard or equivalent, with at least 3 years systems experience in a warehousing or distribution environment. Knowledge of IBM 360/370 JCL will be advantageous.

The most suitable candidate will have had considerable contact with user departments and be seeking to further his/her career in this area.

Our client offers excellent conditions of employment and extremely competitive salaries together with a generous relocation package and attractive future prospects.

Apply giving details of your career history and experience to date to Position Number SNA 1153, Austin Knight Ltd., Brunswick House, Upper York Street, Bristol BS2 8QB. Applications are forwarded to the client concerned, therefore companies in which you are not interested, should be listed in a covering letter to the Position Number Supervisor.

AK ADVERTISING

AM Jacquard Systems

Systems Support

London and Manchester

£7,000-£10,000

AM Jacquard Systems is a rapidly growing organisation which manufactures advanced micro processor-based automated office systems which operate data processing, word processing and communications simultaneously with equal facility.

To support the planned expansion, we now require a number of computer professionals who have experience in BUSINESS PACKAGES or WORD PROCESSING.

Successful candidates must be prepared for the element of travel involved in the increasing amount of business currently being undertaken.

Attractive salaries plus car plus bonus can bring the package up to £10,000 for people who offer the right experience. The London Regional Office is based in High Wycombe.

In the first instance, please write or telephone for an application form from, or send your c.v. to, Ron Burgess quoting reference RB/CW/2421.

Jean Dennington Limited

Personnel Consultants, 14 New Burlington Street, London W1X 1FF.
Tel: 01-734 6134

BE YOUR OWN BOSS

An exceptional opportunity is available to a limited number of experienced, competent and ambitious programmer/analysts or sales people throughout the U.K. who have some minicomputer and business applications experience.

If you feel you have the ability and strength of character to own your own business, but are handicapped by only having limited capital, then write to us now with full C.V. address and home telephone number. All replies will be dealt with in the strictest confidence.

If you qualify for this scheme, very substantial finance and management facilities will be placed at your disposal for only a nominal capital investment.

High fliers contact us now at Box 1009, Computer Weekly.

URGENTLY NEEDED:

COMPUTER SERVICES SALES EXECUTIVES

We are recruiting for a rapidly expanding International Computer Bureau (30%+ growth rate in the year 1978/79!) with office locations in all the major cities of the U.S.A., U.K., and Europe.

Their products have gained a reputation for **versatility, cost effectiveness and reliability** with Senior Management within commerce and industry throughout the world.

Our client requires adaptable, self-motivated sales executives either currently selling Business Systems or Bureau Services (Batch or Interactive) to join an impressive U.K. sales team of over 100 strong, developing new and existing business.

THE REWARDS

★ A **very** attractive basic salary.
★ A **realistic** quota to give earnings of £12,000 p.a.
★ A **commission** on all billings on each new customer.
★ A thorough on going in depth sales and product training.
★ 100% Club. This year Europe.
★ President Club. This year West Indies.
★★ A genuine opportunity to develop a career through sales line management or the marketing division within the U.K., U.S.A., or Europe.

Potential candidates should contact NOW!
Dennis Hall on 01-639 6721 or 05603 773
(evenings and weekends)

DGH
recruitment services

Young DEC Hardware and Software Consultancy offers exceptional opportunities

This is a rare chance for sales and systems people to get in at the beginning of a new venture with outstanding prospects.

Based on an established software facility, a new organisation is being formed to sell both hardware and software to DEC users in the U.K.

Sales Executives

Experienced in mini-computers, preferably in DEC equipment. High salaries, plus commission, plus car.

Support Analysts

This is the ideal opportunity for above-average Analysts – with at least 2 years' experience on DEC machines. In addition to advising the sales force on all technical matters, you will be expected to evaluate potential client requirements, prepare proposals and to assist clients to get the best out of their systems.

All efforts are currently being concentrated on putting together a top-flight professional team, and the company is now able to offer outstanding career development and earning opportunities for experienced men and women. You can be among the very first to help form this successful operation, so you will enjoy both the kudos and advantage of playing a major role in the beginning of a new venture.

Although working from home, you will need to commute to Head Office for regular meetings. Excellent salaries will be paid, complemented by company cars.

Please write in confidence with concise career details, stating any companies to which your application should not be forwarded, to:–

K. J. McQueen, Managing Director,
(Ref. 443),
Executive and Management Link Ltd.,
110 St. Martins Lane,
London WC2N 4BH.

EML
Executive & Management Link Ltd
Recruitment Consultants
A member of the Lopex Group

LIVERPOOL

Programmer to work 20 hours or more per week

Joseph Parr Ltd. are based in Bootle and have a Data General NOVA computer system with on-line links to remote sites. The company require an experienced BASIC programmer to work a minimum of twenty hours per week on the maintenance and development of their computer system.

Applications are invited from experienced programmers, with the ability to take on responsibility for the data processing system, interested in a full-time or part-time position.

Contact: Mr. N. T. Cheetham, at Joseph Parr Limited, 372 Stanley Road, Bootle. Telephone: 051-922 4161.

or 061-941 1022

GEMINI Recruitment

Roberts House, 60 Manchester Road
Altrincham WA14 4PL

British Waterways Board

Computer Centre Wembley

We are currently involved with 24 Computer Applications, encompassing the many and varied interests of the Board. They range from Water Control to Warehousing, Plant Utilisation to Craft Licensing, as well as the normal Payrolls, Ledgers, etc.

We have outgrown our present configuration, which is now being replaced with the new Burroughs "B2800" series of Computers.

This exciting new development will enable us to develop a terminal network to cover all our administrative centres in England and Scotland. The network will be channelled through a "front-end" processor linked to the main frame, which will also multi-program our existing batch work, in single shift working.

Applications are therefore invited for the following posts:

Senior Analyst/ Programmer (Cobol)

(Salary range £6515-£6693 p.a.)

Analyst/ Programmer (Cobol)

(Salary Range £5662-£6693 p.a.)

These are senior posts within the Board's organisation and applications should state full details of all previous experience in the computer field.

Apply to Principal Personnel Officer, British Waterways Board, Willow Grange, Church Road, Watford, Herts. WD1 3QA.

SMR Sales & Marketing Recruiters Ltd
Victory House, 99 Regent Street, London W1R 7HB

Sales Executives

If you are seeking to advance your career rather than simply looking for another job then you need the objective guidance of an organisation which is totally conversant with all aspects of sales and marketing within the computer industry.

Although our activities are devoted to this area we are not merely a recruitment organisation; we are the only company within the industry which also provides sales training, market research and product promotion.

We understand sales people because we have done the job ourselves for a total of over 40 man years, and we know where the best job opportunities are because we have access to all the significant computer companies.

So give us a call if you need help of any kind; we believe there is still room for altruism in business. Who knows, you might even get to speak with TRADER!

Telephone: 01-734 9776

A Sales & Marketing Services Company
TRAINING, PROMOTION, RESEARCH, RECRUITMENT
LONDON & MIDLANDS

THE SALES AND MARKETING BIT

Is the price too high?

INEVITABLY, every salesmen is from time to time confronted by a situation where he is unable to close the order because the client believes or says the product is too expensive.

In these circumstances the salesman's first priority must be to establish that price is the real reason rather than camouflage designed to hide less justifiable and more easily refuted objections.

Having reached a point where it is absolutely established that cost, in terms of budget rather than competitive alternatives is the prime reason for refusal, there are three types of sales argument which need to be explored in order to ensure that the client — and the salesman! — has fully understood all the financial implications of the situation in the context of both costs and savings.

1. Sometimes potential buyers fail to take into account the financial contribution which the salesman's product could make to reducing stocks, increasing service, reducing costs, improving earnings, providing greater management control, etc, because such factors are usually difficult to identify in finite, and that means financial terms. However, features of this kind cannot be written off as intangible to be disregarded. Arbitrary values need to be established for all benefits and set against the cost of the proposed system or equipment. These in turn can be compared with the costs of not only the salesmen's proposals, but also with, the costs and relative efficiency of the potential user's existing methods. In addition it is essential that the client gives close consideration to the cost implications of not going ahead. This includes the possible limitations of existing equipment, the inflationary implications of not buying now and the risk of falling behind competitors in the use of up-to-date technology.

2. Often the total cost of a computer system, particularly to a first-time user, comes as a profound shock. Even when compared with the related savings and benefits, the amount involved can often lead to considerable insecurity on the part of the decision maker. The salesman can sometimes help the buyer to take a more objective view of the financial implications by breaking down the total cost into units which are more easily identifiable and comparable. Even a crude breakdown into cost per day or per person can be helpful, but an assessment of cost per invoice, stock movement, per customer etc, can give the potential client a different and perhaps more realistic view of the overall financial implications than can be gained from the impassive amount in the bottom-right-hand corner.

3. There are occasions when the client simply does not have the capital available to pay for the equipment proposed by the salesman, no matter how attractive the ensuing benefits might be. In such circumstances the salesman is unlikely to be asked for "easy terms". However, this does not necessarily mean that methods of payment other than purchase would not be attractive. It is, therefore, important that all salesmen are not only prepared for the proposition of alternative methods of payment, but also fully understand the financial implications in company terms of rental, leasing, purchasing and other methods of payment. Fluency in such methods can greatly enhance the credibility of both the salesman and his company.

One final thing to bear in mind about price. It is seldom the ultimate deciding factor in the decision making process. Particularly in the computing business, potential buyers often view the lowest price with a degree of insecurity and not a little suspicion. Buying is by-and-large a process with considerable emotional bias where final decisions are not typically technical or financial ones but rather more political, intuitive or impulsive.

In my experience, the salesman who believes all he has to do is get the price right has probably misjudged the real basis of decision.

TRADER

Trader is now on holiday. This column will be resumed next month.

Dasher D3 has WP-like functions

TEXT manipulation functions similar to those found on word processing terminals are a standard feature of the Dasher D3 video terminal from Data General, a successor to the Dasher D1 and D2 models.

The Dasher D3 is a combined interactive and buffered terminal.

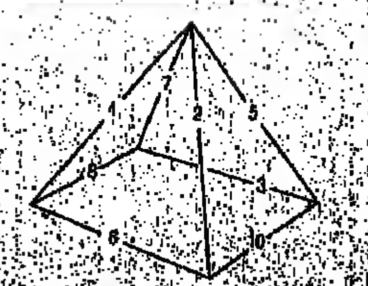
Price list

A COMPREHENSIVE price list which provides details of microcomputer, memory, analogue and data acquisition equipment from the Digital Equipment Corp, Intel, Intersil, Opto 22 and ITT, is available from Rapid Recall, 8 Soho Mills, Wooburn Green, Bucks. Price £1.

Change of address

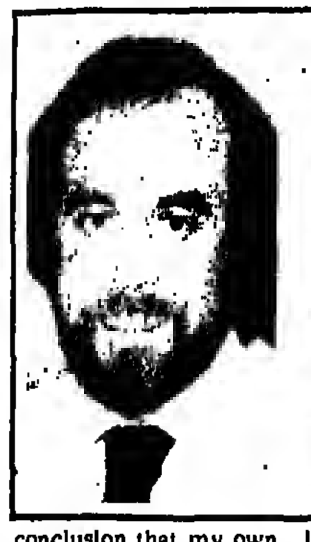
TO provide extra manufacturing capacities Digivision, the Leicester-based manufacturer of video monitors, has moved its headquarters to new premises at 82 Cannock Street, Leicester LE4 7HR.

Puzzle Answer



EDUCATIONAL FEATURE

Training—one of fastest growing areas in DP



By Michael Gough

MIKE GOUGH, sales manager of BOC Datasolve's education department, has held positions as programmer, systems analyst, consultant and engineering services salesman. Here he gives an appraisal of the training scene in the '60s and '70s, based on his own experiences.

SUCH is the severity of staff shortage within the DP industry, and such the constant blandishments to those who are even moderately competent, that many organisations are reluctant to embark on ambitious training programmes for fear that other companies will end up the ultimate beneficiaries of their investment.

Over the past seven years the staff supply and demand problem has been compounded by a succession of government pay policies leading to wide-scale migration and the instability which inevitably results.

Nevertheless, training is one of the fastest growing areas within the DP industry, and new initiatives are constantly underlining the growing opportunity for trainer and trainee alike.

In my view it is a mistake to bury one's head in the sand and hope that problems rather than people will go away.

The spectacular growth and success of the computer manufacturers has placed great demands on the staff market. Very often the training of existing staff in new skills is the only option open and, in any event, is arguably the most cost-effective solution when new requirements occur.

The solution to the problem of migration seems to me to rest more with developing realistic career paths than with endless salary spirals.

In appraising the training scene I have come to the conclusion that my own history in data processing is reasonably representative of opinion on natural (although migratory) career progression in the industry.

For better or worse I have been right through the DP mill, having graduated from computer operator to programmer, systems analyst and consultant before becoming involved with sales. As such I have experienced training in the widest possible sense, having both suffered and benefited from its diverse manifestations.

The first barrier for anyone entering the profession is the layman's conception of the industry, which at best is probably obscured by jargon and shrouded in mystique.

My formative months in 1966 were greatly assisted by ICT's professional and thorough approach to training but, as is often the case, this opened my eyes to opportunities outside the hardware manufacturers' orbit and I was attracted to the live situation, and what seemed to me better career opportunities, of a user site.

I had, however, naively assumed that any training I was to receive would be adequate to the requirements of a commercially accountable environment.

It seemed to me that, as any mistakes I made would be costly, the organisation would want to protect its business by training me well. Sadly, I suffered at the hands of a training philosophy which was all too prevalent in the late '60s. It was based on the assumption that reading a user manual would fulfil the requirements of both of us. Although this was eventually followed by additional in-house training it nevertheless symptomised a widespread lack of awareness within user companies of the value of better trained staff.

The start of the '70s saw greater commitment to in-house training, but this was nevertheless hampered by the limitations of in-house experts propounding personal theory from management pedestals, without themselves having been trained in presentation techniques or an appreciation of the real needs of the situation. One recalls much stuttering, and self-conscious use of visual aids more remarkable for their unintentional ambiguity than their elucidation of salient points. And more often than not audiences were less than totally committed.

The truth of the matter is that the majority of organisations can in no way justify their own dedicated DP training teams, and must look outside for the assistance which most now regard as essential.

Manufacturers themselves provide comprehensive, externally available training which concentrates exclusively, of course, on their own brands of hardware. It is clearly in their interests to invest resources in training the people who will ultimately man their machines in user environments. The availability of suitably experienced personnel should be an automatic consideration when evaluating possible computer suppliers; indeed it may prove the swaying factor in the prospective buyer's decision process.

It goes without saying that they generally train people well. Whether their schemes are totally self-financing is not quite clear. They are very expensive to set up, of incalculable benefit in promoting sales, and in the case of large mainframe manufacturers, essential for in-house and on-going customer training.

My own organisation, BOC Datasolve, has itself, over a number of years, had to make a similar type of investment in order to meet the DP training demands of its own departments and of the parent BOC Group, to which at any given time it may be devoting up to 25% of its resources. A policy of investing in the latest hardware has at the same time ensured a continuously high level of activity internally and active interest from a receptive open market.

In addition to DP training, we at Datasolve have also noticed a marked growth in teaching general management skills such as appraisal and interviewing techniques.

As always, our universities contribute greatly to preparing graduates for the careers in industry – although one is bound to add that a degree of additional training is usually found to be necessary, to create an awareness of the harsh realities of working in a production environment.

Different, inasmuch as they aim deliberately to inject new staff into the market place, the recently introduced TOPS retraining schemes are a welcome government innovation.

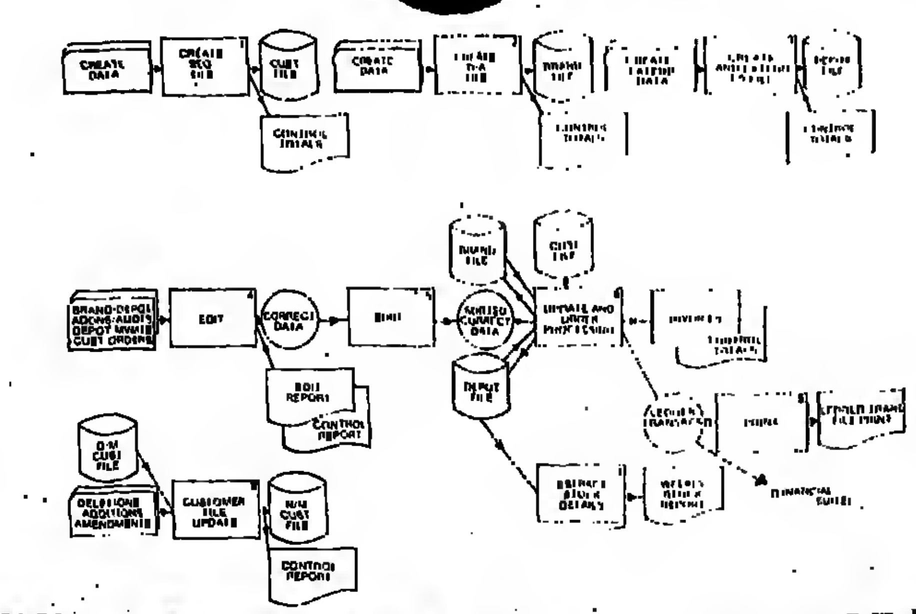
A dimension of training that is likely to increase dramatically in the future is that of specialised software, the use of which has become more practical with the advent of distributed processing. Offering the student an invaluable hands-on approach to learning a subject, it is a natural supplement to traditional classroom methods.

The chalk and talk techniques of a decade ago are rapidly being abandoned for a situation in which the computer is its own best means of ensuring a well-trained future.

Q: How many programmers get to grips with a system like this . . . whilst they're training?

A: Every KBS/TOPS trainee is given this suite of programs to code, debug & system test . . .
. . . and some get as far as amending them too!

KBS Computer Services
Slate Insurance Buildings,
14 Dale Street, Liverpool L2 4TH.



. . . and that's not all . . .

KBS TRAINING SUCCESS IS OWED TO A PHILOSOPHY WHICH PRODUCES HIGHLY ABLE DP PEOPLE WHO ARE CAPABLE OF PRODUCTIVE WORK FROM DAY ONE OF THEIR EMPLOYMENT.

* RIGOROUS SELECTION
Each student gaining a place on our courses has scored well on two aptitude tests, and has demonstrated a high degree of motivation during interviews. Thus trainees are selected for APTITUDE, MOTIVATION and PERSONAL QUALITIES which ensure they will stay the pace of the course and prove to be reliable and capable employees

* INTENSIVE TRAINING
Programming courses last for 18 or 20 weeks depending on the language studied. Each student studies only ONE LANGUAGE, (COBOL, BAL or PL/1) and ONE OPERATING SYSTEM. This concentration allows a real IN-DEPTH knowledge to be gained and makes acquisition of another language a simple matter. Training is undertaken in a competitive atmosphere which leads the majority of students to put in many hours of work in their own time.

* PRACTICAL WORK
In addition to a large amount of theoretical instruction, every trainee has the task of writing 14 programs (including the suite above) which involves flow charting, coding, testing and system testing. Daily testing is available to each student so it's not just knowing how to do it—it's practical experience of commercial programming.

FREE PLACEMENT SERVICE
051-236 7711

Information on course progress is recorded for each student on an individual basis and this is available for inspection by prospective employers. Thus at a glance you can see which students have scored well in the eight exams during the course, and those who have completed all the practical work. Interviewing facilities are available on our premises and course lecturers can provide back-up information on students if required. All these facilities are provided completely free of charge—there is NO COMMISSION as with an agency—and think of the saving in advertising costs. Well over 100 companies have profited from the KBS/TOPS training philosophy over the past 3 years by recruiting from the pool of skilled specialists it produces.

PHONE TODAY TO FIND OUT HOW WE CAN HELP WITH YOUR RECRUITMENT
COURSES IN OPERATING, PROGRAMMING, ANALYSIS. OFFICES IN LIVERPOOL, LONDON, LEEDS, COVENTRY, CARDIFF.

UNIVERSITY COLLEGE, CORK, IRELAND
COMPUTER BUREAU

The Computer Bureau provides comprehensive computer services for academic departments and for the college administration. Interactive computing facilities are supported by an IBM 370/138 Computer and Mincee Microprocessor-based Systems. In addition a new IBM 4331 is on order for early delivery.
Applications are invited for the following permanent posts:

HEAD OF SYSTEMS PROGRAMMING AND SUPPORT
(£5,941-£8,282)

The Head of Systems Programming and Support will be in charge of a small high-calibre team responsible for systems development and support. This is a key post and the successful candidate will be expected to play a major role in forward planning as well as providing day-to-day support for current systems. Extensive experience in Systems Design and Programming and the support of Multi-Access Systems is essential as is a mature personality. Preference will be given to candidates with expertise in project management, computer networks or database systems.

SENIOR SYSTEMS PROGRAMMER
(£5,811-£8,920)

The Senior Systems Programmer will assist in the development and maintenance of Systems Software including Database and Data Communications Systems. Previous systems programming experience is considered essential for this appointment.

ANALYST PROGRAMMER
(£4,942-£5,970)

OR

TRAINEE ANALYST PROGRAMMER
(£4,158-£4,278)

The successful candidates will join the applications group. This group works in small teams developing and supporting programmes covering a wide range of academic, administrative and financial systems. The level of appointment is governed by previous experience and qualifications. Applications received in response to advertising of these posts in February 1979 will be considered.

Applications with full curriculum vitae and names and addresses of three referees should be submitted to Establishment Officer, University College, Cork, by Friday, 15th June, 1979.
Due to postal dispute candidates may telephone (reverse charges). Cork 507553 or 29871, ext. 2502 between 9.30-11.30 a.m. and 3 p.m.-4.30 p.m.

ULSTER POLYTECHNIC
Faculty of Science

A number of new posts have been created in the School of Computer Science. The School runs an Honours Degree Course in Computer Science (Data Processing), a Diploma in Computer Education, an HND Course in Computer Studies and BCS Professional Courses. It also contributes to Degree courses in Business Studies, Accounting and other courses at higher degree, degree and diploma level throughout the Polytechnic.

Specialisations which are of particular interest to the work of the School, but are not intended to make up an exhaustive list, are: Data Processing, Systems Analysis, Management Information Systems, Data-base Computation and Theory, Computer Architecture, Operating Systems and Programming Languages, Distributed Computing and Networks, Quantitative Methods, Computer Education and Computer Assisted Learning.

Applicants for the posts specified below should be graduates with relevant industrial experience. Research and consultancy are encouraged.

PRINCIPAL LECTURER OR SENIOR LECTURER
— DATA PROCESSING

Four vacancies exist in the areas of Data Processing, Computer Education and Applied Statistics at the grades indicated below.

LECTURER II/SENIOR LECTURER
(2 posts)

LECTURER II/SENIOR LECTURER
— FULL TIME TWO YEAR APPOINTMENTS (2 posts)

Salary Scale.		
	Principal Lecturer	£7047-£7818/£8844
	Senior Lecturer	£6051-£7085/£7572
	Lecturer II	£4101-£6558

The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and now has a student population of some 7,500. It has extensive new purpose-built accommodation, including 750 residential places on the 114-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal.

Further particulars and application forms which must be returned by June 4, may be obtained by telephoning Whiteabbey (0231) 65131 Ext 2243 or by writing to:
The Establishment Officer, Ulster Polytechnic, Shore Road, NEWTONABBEY, Co Antrim, BT37 0QB.

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THE RAPID RESULTS COLLEGE
Dept. EV8, Tuition House, LONDON SW19 4DS
Tel. 01-947 7272

BIRKBECK COLLEGE
(University of London)
Malet Street, London, WC1E 7HX

DIPLOMA IN COMPUTER SCIENCE
A conversion course

for graduates in other disciplines. Two years' part-time (evening) or one year full time.

Full exemption from British Computer Society's Examination is obtained in appropriate cases.

Further particulars from the Diploma Course Tutor, Department of Computer Science, [illegible]

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INNER LONDON EDUCATION AUTHORITY

COMPUTER PROGRAMMER
RESEARCH & STATISTICS DIVISION

Salary Range: £4,818-£5843
(Inclusive of London weighting)

A computer programmer is required to work in a small team of 8 programmers providing support to the Research and Statistics Division and other Branches of the ILEA.

Most programming is in Fortran using the CRJE or VSPC tele-processing networks on the OLC's IBM 370 computers. Applicants should be experienced Fortran programmers with, ideally, a degree or professional qualification and a knowledge of statistics.

Further details and application forms obtainable from the Education Officer (EO/Estab 1B) Room 367, the County Hall, London SE1 7PB. (Please enclose a stamped addressed envelope.)

Forms to be returned not later than 24 May, 1979.

BRUNEL UNIVERSITY
COMPUTING UNIT

COMPUTING OFFICER
PROGRAM ADVISORY SERVICE

A Computing Officer is required to be responsible for the program advisory service in the Computing Unit which consists of two programmers. Previous experience in a program advisory capacity is desirable. Advice is given on the use of machines at ULCC, the University ICL machine (in the course of replacement) and a PRIME machine both as regards packages and help in debugging user programs. Additionally the Computing Officer will be responsible for the documentation requirements of the User Service Section. The principal language requirement is FORTRAN.

COMPUTING OFFICER
SYSTEMS AND APPLICATIONS PROGRAMMING

A Computing Officer is required in the Systems and Applications Programming Section. Previous programming experience is essential. The Computing Officer will be concerned with the CDC machines at ULCC, the University ICL machine (in course of replacement) and a PRIME machine.

Training will be given where necessary. Salary within the national administrative grade (A scale £3,744-£7,145 plus £502 London Allowance).

Write for application form and further details to the Assistant Secretary (Establishment), Brunel University, Uxbridge, Middlesex UB8 3PH or telephone Uxbridge 37188, extension 69. Closing date: 25 May, 1979.

INTRODUCTION TO MICROPROCESSORS IN ENGINEERING
A one day course 30th May, 1979

Course fee. £30 inclusive
Enquiries to
School of Electrical & Electronic Engineering
Thames Polytechnic
Woolwich, London, SE18
Tel. 01-854 2030, Ext. 425

PL/1
DOS/CICS
CITY
£230 p.w.
01-262 2251

UNIVERSITY OF CAMBRIDGE
COMPUTING SERVICE

The University Computing Service has a vacancy for a

COMPUTER OFFICER

to be involved with the development, maintenance and support services for graphical systems and applications software both on a large IBM 370/165 and on a PDP11/45 interactive system running RSXII.

Applicants should have a degree or equivalent qualification, experience of computer use in a university environment would be an advantage.

Appointments will be to a Computer Officership in Grade III or Grade IV on salary scales between £3,834 and £6,080 (plus USS benefits). These scales are under review.

Applications including a statement of age, qualifications and relevant experience and the names of 2 referees should be sent to the Director of the University Computing Service, Computer Laboratory, Corn Exchange Street, Cambridge CB2 3QG to reach him not later than 8th June, 1979.

FERRANTI TRAINING FOR THE FUTURE

Courses include:

- Introduction to Computer Programming
- Introduction to Digital Computers
- Basic software languages
- Coral 66
- Mascot
- Computer Maintenance/Engineering
- Ferranti System Courses
- Microprocessor (System Implementation)
- Specialised Seminars

For further details contact:
MARION J. DUFFY
DAVID J. DEMPSTER
Ferranti Computer Systems Limited,
Western Road, Bracknell, Berkshire.
Telephone: Bracknell (0344) 3232

FERRANTI
Computer Systems Limited

UNIVERSITY OF BATH
Systems Programmer Multics

The first Honeywell Multics system in Europe has just been installed to provide computing services to the University of Bath and Bristol. A vacancy exists in the University of Bath Computer Unit for an experienced Systems Programmer to take part in the development and support of this system. Initial duties will include development of high level facilities in the Multics system for support of terminal connections across X25 networks. Experience of systems programming in a high level language or of communications systems would be an advantage.
Salary in the range £4232-£7145 per annum
Further particulars and applications from: The Personnel Officer, University of Bath, Bath BA2 7AY, quoting reference number 79/99/CW. Closing date will be 24th May, 1979

THE OPEN UNIVERSITY
STUDENT COMPUTING SERVICE

COMPUTER ASSISTED LEARNING SYSTEMS

The Service provides student facilities through a nationwide time-sharing network on DEC System 20 and Hewlett Packard 2000 computer systems.

We have a vacancy in the Systems and Programming Group for a Senior Programmer/Analyst — CAL systems. The person appointed will be responsible for the design, implementation and enhancement of computer assisted learning systems. The work will require considerable involvement with academics and educational technologists, responsibility for a small project team and a clear perception of future trends in CAL.

Applicants should have a good honours degree and considerable experience in implementation of CAL systems.

Salary will be on the scale £6,317-£7,754 (under review)

Application forms and further particulars are available from **The Recruitment Office (JD1812/2), The Open University, P.O. Box 75, Walton Hall, Milton Keynes, MK7 6AL, or telephone Milton Keynes 63404; there is a 24-hour answering service on 63868.**

Closing date for applications: 24.5.79

UNIVERSITY OF ABERDEEN
TEMPORARY PROGRAMMER

Applications are invited from suitably qualified persons for above post in Data Processing. The post is tenable for one year in the first instance, but may be extended.
An administrative/library computer (ICL 8050) has recently been installed and includes large disks, VDUs and light-pens. The initial applications areas will be library, finance and student records. A knowledge of COBOL is desirable.
Salary on Other Related Staff Scale 1B (£3,384-£5,604) per annum (under review) with appropriate placing.

Further particulars from The Secretary, The University, Aberdeen, with whom applications (2 copies) should be lodged by 1 June, 1979.

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Let our training take the strain...

If you want the best out of your people, someone has to put the best in – and do it in a way that enthuses, not confuses.

That takes experience. People experience, hardware experience, professional training experience. Datasolve's comprehensive training courses are based on more experience of ICL 2900 VME/B and IBM/MVS systems and hardware than probably anyone else has ever accumulated.

BOC Datasolve balances practical and theoretical training. We take trainees to full competence and convert seasoned staff to new environments – in operations, software, systems analysis, programming and APL.

The people problems you have today we've been solving highly successfully for years. Which adds up to a great start if you train with Datasolve – or a lot of old ground to re-tread if you don't.

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Mike Gough
Sales Manager, BOC Datasolve Education
9 Rochester Row, London SW1 1LA.
Telephone: 01-828 8104.

BOC Datasolve

Send me more information on the following training programmes:

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- ☐ ICL 2900 Advanced Operations
- ☐ ICL 2900 COBOL Conversion
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- ☐ Systems courses
- ☐ APL courses
- ☐ IBM MVS Basic Operations
- ☐ IBM MVS Advanced Operations
- ☐ IBM MVS JCL
- ☐ MVS Utilities
- ☐ Programming courses
- ☐ Complete Education Schedule

Name ....
Title ....
Company ....
Address ....
Tel. ....

UNIVERSITY OF BRISTOL

Programmer in Department of Anatomy and Computer Centre

COMPUTER OFFICER

Applications are invited for the post of Computer Officer which is a joint appointment in the Department of Anatomy and the Computer Centre. The person appointed will be required to write programs for, and supervise the day-to-day running of, PDP 11/03 systems within the Department of Anatomy, and to write programs and give advice to members of the department using the main University Computer which is a recently installed Honeywell 66/68 Level 2 DPS supporting the MULTICS system. The person appointed will be expected to spend the equivalent of 1 day a week in the Computer Centre to gain experience of the MULTICS system so that he or she may be able to advise on its use within the Department of Anatomy.

The main computing task within Anatomy is concerned with the real-time analysis of data obtained from experiments on the nervous system.

Commencing salary within the range £3,883 to £5,804 per annum (scale under review). **The University does not issue application forms and applicants should write to Mr. I. T. Parsons, User Support Manager, University of Bristol Computer Centre, University Walk, Bristol BS8 1TW, describing experience and mentioning age, qualifications, and names of two referees as soon as possible.** Further details are available on request.

UNIVERSITY OF ASTON COMPUTER CENTRE

MSc. Course in computer science with applications

This one-year full-time or two-year part-time course starting in October has places for Graduates with a knowledge of computing. The course is accepted by Science Research Council for tenure of its advanced course student ship.

Further details from: **Dr. C. H. Hunt, Computer Centre, 15 Colashill Street, Birmingham B4 7PA.**

to whom application forms should be returned by 18th June.

UNIVERSITY COLLEGE, CARDIFF

LECTURER

Department of Electrical and Electronic Engineering

Applications are invited for the post of Lecturer in the Department of Electrical and Electronic Engineering. Salary range: £3,883-£7,754. Duties to commence on 1st October, 1979.

Applications (2 copies), together with the names and addresses of two referees should be forwarded to the **Vice-Principal (Administration) and Registrar, University College, P.O. Box 78, Cardiff CF1 1XL,** from whom further details are available. Closing date 14th June, 1979. Reference 1786.

THE HATFIELD POLYTECHNIC

M.Sc. in INFORMATION SYSTEMS M.Sc. in COMPUTER SCIENCE

by

Part-time, Day-release Study

For further details, apply to:

Mrs G. Tagg
School of Information Sciences
The Hatfield Polytechnic
P.O. Box 109, Hatfield, Herts.
Hatfield 88100, ext. 331

SOUTH WEST UNIVERSITIES
REGIONAL COMPUTER CENTRE
University of Bath

ICL 2980 SYSTEMS PROGRAMMER

Readvertisement

The Regional Centre (SWURCC) runs a large ICL 2980 system connected to a sophisticated multi-computer communications network serving universities in Bath, Bristol, Cardiff and Exeter. A vacancy exists in the Systems Development Group, within the Operating Systems team. This team is responsible for developing new facilities and providing technical support for the operating system, VME/B. Current developments include a high-level scheduler, library housekeeping software and the connection to the communications network.

The ideal candidate must be willing to become experienced in many areas of VME/B, and to generate solutions to overcome weaknesses in ICL software. 2900 experience would therefore be valuable, as would experience of other large-scale operating systems.

Salary will be at a point determined by experience and ability within the range £4232-£7145 per annum.

Although we hope that the successful applicant will start as soon as possible, potential candidates who cannot start for several months should not be debarred from applying.

Application forms and further details may be obtained from the Personnel Officer, University of Bath, Bath BA2 7AY, quoting reference 79/258/CW. Closing date for applications is 25th May, 1979.

THE OPEN UNIVERSITY
DATA PROCESSING DIVISION

TENTH ANNIVERSARY

OPERATIONS PLANNING

Salary up to £6,000

The Open University, founded in 1969, is now a major force in higher education. It has pioneered new forms of undergraduate and post-experience education, and its future plans include developments requiring a similar level of innovation.

Data Processing has been fundamental to the growth of the University and is scheduled to play a major part in its continuing development.

The Operations Planning Section plays a vital role in representing Data Centre interests in the early development of systems, in facilitating the hand-over of newly developed systems for live operation and in supporting accepted systems on a continuing basis.

Applications are invited from persons who have experience of programming and computer system design, preferably with knowledge of Univac 1100. Career development prospects are good and in addition we offer: good holiday provision; rural location with houses available to rent or to purchase at reasonable prices; sport/social facilities.

Application forms and further particulars are available from: The Recruitment Office (J02479/2), The Open University, P.O. Box 75, Walton Hall, Milton Keynes MK7 6AL, or telephone Milton Keynes 63666: 24-hour answering service.

Closing date for applications: 25th May.

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If you're working in computing then you know it's an industry with a big future. But what about your future? Is your career progressing as quickly as you'd like — or do you need more knowledge and training?

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Why PCL? The Polytechnic combines comprehensive modern facilities with a long history of excellence in education. Our high standards are respected, not only by academics, but also by Government and industry.

Why the part-time BSc? PCL is unique in London in offering a day-release degree course in computing. Spread over four years, the course takes up one day and two evenings a week. This allows you to continue your job while acquiring new training. The course gives a good basic knowledge of computing and programming in a variety of fields, and includes: Principles of Computing, Data Processing, Systems Analysis, Hardware, Software, Software Programming, Data Base Design, Management Techniques and Operational Research.

Entry requirements: Normally you will need GCE A levels including Mathematics, or an ONC/OND in Science or Engineering. But if you're a mature person with the right experience, these entry requirements may be relaxed. Find out more. For full details of this course, write today to:

The Registry
School of Engineering and Science
115 New Cavendish Street
London W1M 8JS
Tel: 01-486 8811 ext. 241

The Polytechnic of Central London

UNIVERSITY OF ABERDEEN
COMPUTING CENTRE

The Centre operates a large Honeywell dual processor 66/80 supporting a large terminal network. Applications are invited for the following posts:

1 SYSTEMS PROGRAMMER

To join the group responsible for the development and support of the systems software. Applicants should have a good honours degree and relevant experience, with proven skill in the development of mainframe operating system software, communication software or microprocessor systems.

2 PROGRAMMING ADVISER

To join the team responsible for the development of application software and the user advisory service. Applicants should have a good honours degree in Statistics, Mathematics or Science and experience in programming in a high level language. Preference will be given to candidates with experience of Statistical or Numerical Applications and an interest in software package development.

Salary in each case on Grade 1A scale, £4,232-£7,145, rising to £4,333 to £7,821 per annum on 1 10 78, with appropriate placing.

Further particulars from The Secretary, The University, Aberdeen, with whom applications (2 copies) should be lodged by 1 June 1979.

METROPOLITAN BOROUGH OF SEFTON

SOUTHPORT TECHNICAL COLLEGE

Required 1st September

LECTURER 1 Computer Studies

to teach mainly O.C.E. 'O' and 'A' level standard. Applicants should be graduates; possession of teaching certificate an advantage.

Application form and further details from:
The Principal
SOUTHPORT TECHNICAL COLLEGE
Mornington Road, Southport, Merseyside PR8 2TT
to whom they should be returned within 14 days of appearance of advertisement.

LANCHESTER POLYTECHNIC AT COVENTRY
FACULTY OF APPLIED SCIENCE
Department of Computer Science

RESEARCH ASSISTANT

£3192 - £4293

THE JOB: Tenable from the 1st September, 1979, and will initially be a 2-year appointment with a possible extension of a further year, to work on a research project concerned with the application of microprocessors and the problems arising predicting the earliest rolling limes of steel in a reheating furnace.

REQUIRED: Preferably having a first or upper-second class honours degree in Computer Science or Electronic/Electrical Engineering with a substantial computing content or equivalent. Practical experience in the application of microprocessors would be an advantage.

For application form and job specification please apply in writing, enclosing a large stamped and addressed envelope to the Personnel Officer, Lanchester Polytechnic, Priory Street, Coventry CV1 5FB returnable by Monday 21st May, 1979.

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A METHODS AND PROCEDURES ANALYST

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REF: 601

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Assembler Workshop				■	■	●	●						
PL/1 Workshop				■							●	●	
Cobol Workshop	■							●					
DOS/VS Workshop		●	●							■	■		
Computer Appreciation			■							●			
Systems Analysis				●								■	
Database Concepts				●							■		
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2 PROGRAMMER ADVISERS
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Applicants must have a degree or have a graduate equivalent status in mathematics, computer science or other relevant discipline. Have at least two years' post graduate experience (four years' for the Team Leader posts) of programming in a scientific, technological or commercial field, preferably in a variety of computer languages. Applicants for all the above posts should be full members of a relevant professional organisation. For application form and job specification please apply in writing enclosing a large stamped addressed envelope to the Personnel Officer, Lanchester Polytechnic, Priory Street, Coventry CV1 5FB returnable by Friday, 8th June, 1979.

For application form and job specification please apply in writing enclosing a large stamped addressed envelope to the Personnel Officer, Lanchester Polytechnic, Priory Street, Coventry CV1 5FB returnable by Friday 8 June, 1979.

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Applications in writing (including a statement of age, qualifications and experience and the names of two referees) should be sent to the Director of the Computing Service, Corn Exchange Street, Cambridge CB2 3QG by the 8th June, 1979.

UNIVERSITY OF LIVERPOOL DEPARTMENT OF PHYSICS

GENERAL ASSISTANT

Active and intelligent person, preferably over 30, to assist generally with running Department's computers. Training provided as necessary. Normal hours of work 8.00 a.m. - 5.30 p.m. Monday-Friday. Salary within range £3,032 p.a.

Application forms may be obtained from The Registrar, The University, P.O. Box 147, Liverpool L69 3BX to whom they should be returned as soon as possible. Quote ref. RV/197/CW.